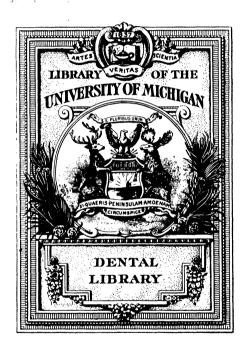
AMERICAN DENTAL JOURNAL

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Our Post Graduate	• Cours			.,	•						
Our Fost Graduati	-										
		BLE	OF (CON	LEN,	TS.					
Operative Den Bacteriology a		ology	,								
Original Contribut	ions.										
Toothsome To											
Some Hints for		l Stud	ents,								
Over-Specializa		Chi									
New Organiza	tion of	Спіса	ıgo,								
Editorial. Principles and	Denotio	o of E	:11:5~	Toot	h:4	h D-		n (P.			
Review of "D	ental I							п (в;	угап	')	
Abstract and Sele					_		_	_			
Should the P	racticin	g Ph	ysicia	n or	Der	ntist	Own	Sto	ck i	n	
Proprietar	y Medi	cines!	.+:+	-	-	-	-	-	-	-	652
Requirements of Ar	or an A	nestne	tist,	- 1n	-	-		-	-	_	654 656
Method of Res	taining	Teeth	Afte	r Re			-	-	-	_	657
Burnishes Join	it for 1	Porcel	ain C	rown	5 arati 18.		_	_	-	_	661
Method of Ro	ot Rest	toratio	n for	a C	rown	1.	_	_	-	-	662
Dental Educat	ion in t	he Pu	blic S	choo	ls an	d Ho	ow It	Shou	ıld B	le	
Enforced,			-		-	-		-	-	-	663
The Important	ce of M	lastica	tion	as R	elateo	i to	Healt	h,	-	-	667
Sensitive Cavi	•	-	-	-	-	-	-	-	-	-	672
Foreign Departme		А Т.		T	D 0	T2-4	!!				
	HOMAS	A. LA	KSENEU	JR, D	. D. S	., Ed	itor.				
Meetings, - ·	-	(-	-	-	-	-	-	-	-	-	645
Miscellaneous, Personal and Gene		- -	-	-	-	-	-	-	-	-	678
Necrological, -	- a	-	_	-	-	-	_	_	-	_	681 683
Illustrated Patents		_	_	_	_	_	-	-	_	-	684
For Sale Ads,	-	-	-	-	-	-	-	_	_	_	686
Index to Advertise	ers, -		-	-	-	-	-	-	-	-	687
By R. B. By George	Tuller,	D. <u>D</u> .	S., _			-	-	-	-	-	619
By George	W. Coo	ок, В.	S., D	. D. S	i.,	-	-	-	-	-	622
By R. B. 7 By L. P. F	ULLER,	ט. ט.	S .,	-	-	-	-	-	-	-	641
By E. F. I By Frank	DEPRY 1	, - Pierce	MT		-	-	-	-	-	-	637 638
By Geo. W.	Cook	B. S., 1	D. D. S	S.,	-		-	-	-	_	
By Geo. W. By Geo. W	. Cook.	B. S.,	D. D.	Ś.,	-	_	-	-	_	_	
By Geo. W	Cook.	B. S.,	D, D	S.,	-	-	-	-	-		649

Listerine Tooth Powder

Tooth powders have long been empirically employed, chiefly as a mechanical agent for cleansing the teeth, and with little regard to their composition or chemical action. Many of the articles sold for this purpose contain ingredients prone to fermentative action in the mouth, such as orris root, starch, sugar, etc., and, in addition, pumice stone, cuttlefish bone, or other harmfully abrasive substances.

Listerine Tooth Powder, possessing neither of these objectionable qualities, very acceptably meets all the requirements of a frictionary dentifrice, and promises to give much satisfaction to those who employ it, in conjunction with a mouth-wash of Listerine, suitably diluted.

To dental practitioners of record, the manufacturers will be pleased to send a supply of samples of Listerine Tooth Powder for distribution to patients.

Lambert Pharmacal Co. Saint Louis



OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.

DISCUSSING GOLD.

In this day of gold-casting, which has but recently become a feature in the practice of the art of dentistry, it is perhaps pertinent to review some of the quantities of gold and its alloys; and the process of refining, to some extent, that may be put to practice in the routine of every-day laboratory work.

The beautiful color and lustre of gold and its power to resist oxidation make it one of the most valued of metals, the latter quality being especially valued for use in the mouth. Its thermal conductivity of high degree, however, is a disadvantage in its use for fillings and inlays, modified in the latter instance of course by the intervening layer of cement between the metal and tooth tissue. While in itself a beautiful color, gold is not aesthetically consistent as a filling or repair material in the teeth where exposed prominently to view.

At the temperature to which pure gold is subjected at the hands of the dentist in his laboratory ordinarily, in melting for casting purposes, it is not appreciable volatile so that practically it may be melted and remelted again and again without appreciable loss or waste. And yet there is some slight volatilization as shown by the experiment of holding a piece of polished silver in the vapor of melted gold when it becomes slightly gilded, and thin gold leaf and fine gold wire may be entirely dissipated by a powerful charge of electricity.

When gold, however, is alloyed with baser metals it may sometimes be refined to a greater or less extent by cupellation, or the use of a blow-pipe flame, and much more thoroughly by use of the oxyhydrogen blow-pipe. Of course, when the baser metals of an alloy are burned out and thus driven off the weight and volume in consequence is in so much reduced, but is increased in carat value, or degree of purity. Scrap gold of varying carats, if kept free from an

intermix of promiscuous clippings and filings, as they should be, and especially of platinum and platino-iridium filings not so easy to keep out when all the precious metals are so frequently filed with the same files, will with repeated meltings become each time a little better refined, especially if the gold is kept "boiling" as it usually is in the process of casting under pressure, suction or other force used to put it into the mold. Platinum or platino-iridium in alloy with gold raises its melting point, and unless designedly and intelligently put in to add hardness to the gold to increase its power of resisting wear and tear, should be very studiously guarded against. While platinum has a melting point very much higher than gold, it will alloy with melted gold to some extent if introduced in fine particles. num-gold alloy is properly made, however, by melting the platinum and introducing the melted gold, but this alloy does not come into the inlay proposition, though it may have a place in bridge or plate casting. Clasp metal, so known by dentists, is the alloy usually employed in plate and bridge casting. Pure gold is in most cases too soft for such work.

Gold clippings and old gold fillings may be very consistently melted up together to make inlays, but filings, so easily contaminated, should never be introduced, unless the dentist so manages his filing always that all the varying grades and kinds will be kept strictly separate which is rarely done so that one knows the grade of them.

There are other metals such as iron, steel, nickel, German silver, brass, copper, silver, etc., that should be carefully excluded from possible introduction into scrap melting since some of them are difficult to eliminate without sending to the refiner. Silver and copper and nickel and zinc or brass are sometimes used in making alloys, or carat degrees; but as a rule any of these metals introduced in a haphazard sort of way is quite apt to produce ratner unsatisfactory inlay metal, or an erratic alloy that more often than otherwise results in faults in casting. Of course one may use 16, 18, 20 and 24 carat gold in making inlavs and other cast things; but nothing works quite so smooth and satisfactory as pure gold, and from an economical standpoint there is so little gained that it does not pay even in good sized inlays. Better modify the cavity with the use of cement shaped to reduce the quantity gold needed, or bore out a cavern in the cavity surface of the inlay, saving the gold, of course. Such caverns are frequently

made both for purposes of giving better cement hold, and to reduce the thermal conductivity where a close approach has been made to the pulp when preparing the cavity.

Now, a simple way to refine a scrap (such as a dentist usually has—filling and clippings from gold plate, not filings) is to place it in a pit dug out of a piece of beechwood charcoal which is close grained and not very liable to check. For a flux use equal parts of borax and salt petre, and sprinkle freely from time to time while the gold is kept boiling with the blow-pipe until visually it shows refinement—clear and free from oxidation, and very fluid. It is now ready to be put in the flask crucible and melted for casting. The longer the gold is "boiled" with the high-efficiency flame, the purer the gold will become; but there are some metals that in an alloy exert a persistent undesirable influence without going through the very best process of refinement known.

As to color, silver in even small quantities makes a lighter shade. Copper makes a deeper shade.

Pure gold, as dentists generally know, is the most malleable of all metals. One grain may be beaten into leaves which cover a surface of 56 square inches, and only 1/282000 of an inch thick. It is so ductile that the same amount (one grain) may be drawn into a wire over 500 feet long and one ounce covering a silver wire is capable of being extended more than half way around the earth. Having in a high degree the property of cohesion when pure it can be welded cold, and coins and metals may be made by compressing in dies from precipitated gold, that being perfectly pure. The melting point of gold varies some under different circumstances, but it is ordinarily very close to 1,200° C. The melting point varies a little, as well as color, according to the territory it is mined from, due to nature's association of other metals in the laboratories of the earth.

The trouble about casting gold without an influence other than gravity to cause it to run into the mold is that most gold casting requires such small quantities of the metal that its weight, even with liberal surplus, is not enough to overcome the globular tendency nor the friction of the sprue hole. This has been the reason why gold casting, though desired and sought long ago, never came into use until Dr. Taggart showed us the way.

To be continued.

AMERICAN DENTAL JOURNAL.

BACTERIOLOGY AND PATHOLOGY.

BY GEO. W. COOK, B. S., D. D. S., CHICAGO, ILL.

DEAN OF DENTAL DEPARTMENT, UNIVERSITY OF ILLINOIS; PROFESSOR

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The proper interpretation of a scientific knowledge cannot be gathered by the mere statements of a few facts. To properly interpret scientific facts one must not only be familiar with the subject under discussion, but he must have a fundamental knowledge, to a greater or lesser degree, of certain biological phenomena pertaining to growth and development of all living substances from the highest to the lowest forms of animal and plant life.

Therefore the interpretation of what we understand by pigmentation in bacteria, and their physiological function, is a question very largely of the rearrangement of a molecular compound. Experiments have been performed sufficiently to test the fact that it is possible. in extreme cases, to bring a bacterium that would ordinarily cause oxidation in the absence of oxygen to reduce from oxides substances in foodstuff for the body of bacteria. For instance, the rearrangement of the molecule can be produced by a certain organism, as has clearly been demonstrated. The determining cause in most all instances lies in the grouping of the atom in the molecule, which either in the presence of oxygen or in its absence is broken up and the atoms are separated by certain disintegrating impulses. This molecular disintegration does not always necessarily have to be brought about by living things, for other forms of motion have been known to accomplish the same results. Duclaux obtained by isolation a sort of an alcoholic fermentation of sugar. Ritsert affected oxidation of fats by the use of light.

The cultivation of anaerobic bacteria upon proper nutrient material, at first, in spite of oxygen products, due to the splitting, are formed and oxidation of these products, which we might consider secondary compounds, are effected by a sort of process of oxidation, or rearrangement of the molecule is a form of oxidation that takes places only in the absence of the free oxygen of the air. Consequently it can only be produced by anaerobic bacteria. It is through this kind of phenomena that we are able to explain how the pigmentation

and toxins are formed by certain bacteria. It may also be said that the pathogenic properties of certain bacteria is well illustrated in the cholera bacillus. This organism is pathogenic in the young cultures and nonpathogenic after being exposed to the air for some time. For this same reason our cultures of pathogenic bacteria on gelatin, potato and broth, seem to lose their power to produce disease. This is well illustrated with reference to many bacteria that lose their virulency, also their power to produce pigment or toxic substances.

We have previously called attention to light, oxygen pressure, and to the chemical composition of food substances. Great stress should be placed upon the fact that bacteria are easily influenced by light and by moisture. When we consider the forms of bacteria, and the important role that they play in the field of living substance, we cannot divorce them from other living organisms. Though they may be the lowest in the scale of all known living substances, they possess the elementary vital phenomena of life. The best definition for life is that given by Max Verworn, in which he says, "Life is a series of vital phenomena very unequal in importance." What may constitute the vital activity of mankind is varied in accordance with the environment in which it is placed. The same may be said to be true with reference to various forms of bacteria.

While it is a vital phenomenon of every cell to take foodstuff, bacteria differ in every kind with every cell to a more or lesser degree. In the majority of instances the plant life can under some circumstances produce their growth and propagation in a foodstuff made up of inorganic substance. However, we understand at once that certain forms of parasitic life must have a living host upon which to carry out their true physiological function. It has been found that water 1,000 parts, potassium nitrate 1 per cent, sodium chloride ½ per cent, calcium sulphate ½ per cent, magnesium sulphate ½ per cent, calcium phosphate ½ per cent ferrous sulphate 1/500 of 1 per cent is a sufficient agent to grow the majority of vegetable substance, provided warmth and moisture is sufficient to bring about a vegetable growth in practically a normal way. However, this same solution will maintain the vital properties of bacteria. By placing 1 per cent of asparagenic acid in this solution one can grow bacteria in almost their natural habitat, provided he has the necessary heat.

It will be seen that bacteria to a very large degree differ from

other vegetable forms of life, in that they require some organic substance. In this particular they are quite like the animal kingdom. However, there are some bacteria that can and do grow on an inorganic solution, but to that solution must be added ammonium nitrate.

It will be seen from the foregone statements that the phenomena of metabolism, in its widest sense, signifies that the whole process involves the taking in of foodstuff and the environment of the cell. It has been shown that in the process of building up a living cell in a physiological state it must have proteids, carbohydrates and fats. Proteids are indispensable to all forms of life existing at present on the surface of the earth. One need only briefly review the chemistry of a proteid molecule to find that it contains carbon, hydrogen, nitrogen and sulphur, and in a number of instances oxygen. All efforts have been made to determine the true chemical formula of a proteid molecule without any success. Prever found, as near as he could determine, that haemoglobin of the blood, chemically, stood about as follows: C₆₀₀H₉₆₀N₁₅₄Fe₁S₂O₁₇₉. It was found, however, by Grubler that the proteids in squash seeds have a much lower atomic grouping in the molecule. This may illustrate that some organic substances. and especially the proteid molecule, may have a very different proteid molecule in its general characteristics. So this is possibly as well illustrated in the complexity of the proteid molecule of the haemoglobin and such vegetable compounds as Grubler showed in the squash seed. In such cases we can understand the difference of complexity of organic substances in different animals and even animals of the same specie, depending upon the environments and the conditions under which a proteid molecule may be formed. It would not be surprising to later learn that the proteid molecule in man may be very much higher in its complexity over that of the same compound in organic substance like that of bacteria. However, if that is true we can better understand how much more liable the proteid molecule in the higher forms of animal life may be technically disturbed by the contact of some of these lower molecular forms, for it has been more than once demonstrated that the complex substances are more easily caused to be broken up, or, in other words, the complexity of the molecule renders it more unstaple.

In the building up of a complex molecule there is a phenomena known as polymerization, a sort of a doubling up of the simpler compounds into one of a more complex nature forming an anhydride, by which new substances rise from a compound to a loss of water and reduction takes place through the loss of oxygen. The breaking down of organic bodies in and through the action of living things takes place through the loosening of the bonds of polymerization. Through this process of reasoning Low explained that the parasitic forms of life, and especially the anaerobic forms of life, enter the tissues of living substances, and through their effort to obtain their own nutritive substance they loosen the bonds of polymerization by taking out oxygen for their own body substance. While this parasitic form of life is carrying on its physiological function it is doing so at the expense of its host. In a large number of cases these parasitic forms of life give off from their cellular substance a compound that is sometimes extremely toxic in its nature. This we call toxin.

It is upon these fundamental hypotheses that we explain the actions of bacteria in producing disease in living organisms. In dead organic substance of a nitrogenous substance they produce putrefaction, and upon the carbohydrate substances they produce fermentation. These three great functional activities make the science of bacteriology very fascinating as a science, and so interesting in the realms of fermentation and putrefaction.

It will be observed that the carbohydrates play a very important role as a food material. A carbohydrate in its purest state contains but three elements, namely, carbon, hydrogen and oxygen. Carbohydrates are said to contain six atoms of carbon or a multiple of six, while the atoms of hydrogen is always double that of the atoms of oxygen. The hydrogen and oxygen atoms always stand in relation to each other in about the same proportion as they do in water.

The three molecular compounds known as carbohydrates are recognized as monosaccharides, disaccharides and the polysaccharides. The two last chemical groups are the different hydrides of the first group. The monosaccharide molecule is $C_6H_{12}O_6$. In this molecular group there are three isomeric compounds, but they differ from each other in that their polarization of light is different. Therefore it will be seen that in this group of foodstuff we have the same chemical formation with a physical difference. The monosaccharides belong to the great sugar group, namely, dextrose, glucose, also laevulose. They are found principally in plant juice, but dextrose is also found in

animal tissue. The formulas that have just been mentioned are important in that they furnish some of the elementary foodstuff for bacteria as well as playing an important role in the tissue substance of animal forms of life.

These carbohydrate substances may play an important role in certain degenerative forms of the tissue cells, because they are found closely associated with, and chemically bound up in, the mucins of the animal tissue. In the tissue cells that play an important role in the mucous formation of certain cells of the body we find the carbohydrates always present, and they are easily changed by certain chemical manipulation. We have heard considerable discussion as to acidosis of the body, in which it would appear that the acid substances that come in contact with certain cells of the mucous membrane would come with the acid in the blood. From a physiological point of view changes are quite out of the question, but the carbohydrates that are in the body and especially the mucous cells make a laboratory whereby carbohydrates can break up through the interaction of certain external influences, or from no external influences and only by certain physical action they can become changed. In fact one of the functions of this tissue is to enzymatically act upon carbohydrates by loosening the bonds of polymerization and an acid reaction would be the result.

I have taken and removed portions of mucous membrane of the mouth of animals and obtained an acid reaction. If by taking a piece of mucous membrane from an animal's mouth and freeing it from all bacterial agents, one will find that some time in twenty-four hours he will get an acid reaction that comes purely from the carbohydrates of that tissue. I have also produced erosion on the surfaces of teeth with that mucous membrane. But these are only experiments that are in the process of development along this line. I hope some time in the future to make a more extended report upon this very important and interesting field. The subject that is principally up for discussion at this time is the part that is played by all substances that act as a food material for living organisms, regardless of whether they are high or low forms of life. But the thing that interests us most is the food material for bacteria.

(To be continued.)

Our Foreign Department

THOMAS L. LARSENEUR, D. D. S., Foreign Department Editor

PERFECT REFRIGERATION WITHOUT PAIN.

(The Dental Surgeon, London, August 15, 1908.)

To obtain perfect refrigeration without causing any discomfort to the patient during automization of ethyl chloride, surround the place of operation with tissue paper, leaving a suitable opening, and folding the paper in a fan-shape. The flow of saliva will not inconvenience either patient or operator.—Le Monde Dentaire.

SERUM TREATMENT.

In the course of a letter in the British Medical Journal of August 15, dealing with the "Therapeutic Uses of Normal Serum," Dr. D. Montgomerie Paton, L. R. C. P., and S. Edin., of Melbourne, points out that in October, 1907, he reported to the Odontological Society of Melbourne over 300 cases of the local use of anti-diphtheritic serum in traumatic and septic dental conditions. The cases dated from 1901, since which year he has had a further batch of satisfactory results. The cases were reported in the Australian Journal of Dentistry for February, 1908.—The Dental Surgeon, London, August 22, 1908.

TANNIC ACID FOR PYORRHEA ALVEOLARIS.

(The Dental Surgeon, London, August 22, 1908.)

In connection with pyorrhea alveolaris, neuralgic or rheumatic pains are sometimes met, which affect one or more teeth and yield to no remedy, so that patients often ask to have the teeth extracted. In such cases a concentrated solution of tannic acid—that is, one part of tannic acid to five parts of spirits vini rectificatis (dilute alcohol) should be applied. With this solution the edge of the gingivae is painted several times on the sensitive side, whereupon the pain will disappear. This solution generally acts better than nitrate of silver or any other remedies. The teeth also become firmer.—Wiener Medical Press.

CLOSURE OF THE JAWS.

(The British Journal of Dental Science, London, August 15, 1908.)

At the Edinburgh Medico-Chirurgical Society, Mr. Cathcart showed a woman who was admitted to his ward on account of inability to open the jaws. There was a history on two previous occasions—1901 and 1904—an operation had been performed to relieve the condition. The case was thought to be one of ankylosis, and injections of fibrolysin having proved ineffectual, operation was determined on. He proposed to remove a wedge from the right side, and possibly from the left. Under chloroform, however, he found that the jaw could easily be opened. A gag was therefore inserted, and the operation was not proceeded with. The patient could now open the jaws perfectly well. The case was looked upon as hysterical.

MAGNESIUM SULPHATE AS AN ANESTHETIC.

(Journal Odontologique de France, Paris, August, 1908.)

Amongst the latest anesthetics which have been recently introduced into surgical practice, we wish to call your attention to magnesium sulphate, which has been praised by Dr. Samuel J. Meltzer after he had made several experiments at the Rockefeller Institute of New York.

This agent has been used for both local and general anesthesia. As a general anesthetic, it seems superior to chloroform and ether, as it does not affect either circulation nor respiration. It has no action on the heart, the temperature remains normal, and anesthesia has been prolonged way beyond the limits of chloroform or ether without any inconvenience whatsoever to the patient after the operation.

Anesthesia is produced by injections of a 20 per cent solution, which are to be made on the course of the sensitive nerve or of the rachis if general anesthesia is desired. In such cases, Dr. Meltzer injects the solution between the shoulders at about the heighth of the second dorsal vertebra.

In cases of intra-mucous membrane injections, the diffusion, however, takes place quite rapidly, but the results are not very satisfactory, as it is difficult to attain the nerve with the injection. For this reason it is not of a great value to the dental profession.

Magnesium sulphate is a white salt found in neutral mineral waters similar to Epsom salts and Seidlitz.—(Translated from La Odontalgia, Daniel Castilla, de Buenos Aires.)

DENTISTRY UNDER HYPNOSIS.

A hypnotist writes as follows to Science Siftings: "I took a patient today (a young woman, 24 years of age, whom I had already cured of chronic headache, nervousness, and insomnia) to my dentist to have some stumps extracted under hypnosis. Fourteen stumps were extracted (more difficult than whole teeth) from the upper jaw in one sitting in a few minutes. There was no need for haste as with gas, because I could keep the patient under just as long as I desired. Under gas, the operator has only 30 seconds, and the haste is sometimes brutal. When I awakened her after the operation, she "When is the dentist going to begin?" I said: asked: She answered: "Isn't he going to take out any today?" what?" Fourteen teeth had been extracted and she knew nothing of it. There was no discomfort, no soreness, and so little bleeding that a wax impression of the jaw was taken immediately after; she felt perfectly well. Yet hypnotism makes such slow progress in this country. can supply the name and the address of the dentist who performed the operation under my hypnotizing, to any inquirer."—The British Journal of Dental Science. London, July 15, 1908.

SYPHILITIC CONTAMINATION.

(Journal Odontologique de France, Paris, August, 1908.)

Physicians, surgeons, men mid-wives, mid-wives, dentists, should caution themselves with more care regarding contagion of syphilis. Dr. Bashko, at the Medical Society of Berlin, mentioned twelve cases under his observation of acquired syphilis when exercising their profession. In the majority of cases, the chancre was seated on the finger, and in most instances developed from a panaris or a simple dactylitis; although in one instance only the chancre was seated on the middle of the face, which was caused by inoculation with the fingers.

Moreover, Dr. Queyrat, the celebrated physician of the Cochin hospital, has recently published the following case (*Presse Medicale*,

June 27, 1908) concerning a young dentist, age 29, who had consulted him in the following circumstances:

"He had been married for a year, having never had syphilis, and having committed no infraction to the conjugal fidelity. For the past ten days he had been complaining of an ulceration which was located on a level with the dorsal surface of the interphalangeal articulation of the right thumb. This ulceration had reached the size of a lentil, smooth, dark red in color, and was surrounded by regular borders, having the shape of a chisel. This wound was quite tender, but did not bleed under pressure. It had a very marked appearance of chancre induration, besides there was an epitrochlear adenopathy which was very defined. The peculiar aspect of this wound led me to believe that the condition was specific and that the ulcer was a syphilitic chancre, but, considering the social and family conditions of the patient, I thought wise to call for the history of the case before giving my diagnosis, and here is what I learned.

Five weeks previous to this, he had been consulted by a traveler-patient, who wished to have a tooth extracted. Before proceeding with the operation, he examined the affected tooth with an explorer and after thorough examination he decided it should be extracted.

The explorer, full of debris of tooth and saliva, was placed on a drawer of the bracket table, and in reaching for the forceps unfortunately his sleeve caught on it and the point of the explorer imbedded itself quite deeply in the interphalangeal articulation of the right thumb of the operator, causing a sharp pain with very slight hemorrhage.

The dentist immediately applied a bandage of sterilized gauze over the wound and proceeded with the extraction. He did not think of asking the patient whether he was syphilitic or not. The wound was then washed with a 1/1,000 solution of bichloride and he thought all would be well; in fact, the wound healed very rapidly and nothing more was thought about it. About twenty days later, congestion appeared, followed by redness at the point where the wound had been inflicted; this soon developed into a small pimple, which rapidly increased in volume until it had reached the dimensions above mentioned.

"This confirmed the diagnosis I had made of the case as being a syphilitic chances.

"The patient called on me a month later, and I noticed a well-developed case of secondary syphilis where all the symptoms were well marked."

This observation not only points to us the necessity of asepsis in such cases, but it proves to us that superficial asepsis is of no value when we are dealing with a deep wound. Bashko (of Berlin) advises the cauterizing of the slightest abrasions with a solution of silver nitrate, 2 to 3 per cent, after which the abrasion may be sealed with collodion. Tincture of iodine or hydrogen peroxide may be applied immediately after the wound has been inflicted.

These methods are more or less reliable, and according to Dr. Queyrot the thermocautery should be freely used, inserting it deeply several time into the abrasion or wound. When these precautions are taken, one may feel assured that no development of bacteria will take place and infect the system.—(Le Courrier Medical, July, 1908.)

FOUL BREATH: ITS CAUSES, PATHOLOGY AND TREATMENT.*

BY ANDREW WYLIE, M. D.,

ASSISTANT SURGEON CENTRAL LONDON THROAT AND EAR HOSPITAL.

(The Dental Surgeon, London, May 23, 1908.)

Mr. President and Gentlemen:—Having received the honor of an invitation to read a short paper, it has occurred to me that some remarks on the subject of foul breath might possibly interest the members of this society.

I hardly dare lecture on any disease connected with the throat or ear in the presence of our president, more especially after his able address before this society at the beginning of the session. The subject of foul breath, however, although closely allied to the work of the laryngologist and rhinologist, it is also one which closely concerns many other forms of practice.

Foul breath is such a source of annoyance to the individual, such a discomfort to friends, acquaintances and fellow-workers, that by being able to treat it, not only temporarily, but to get rid of it

^{*} Paper read before the West London Medico-Chirurgical Society, March 6, 1908.

altogether, you will confer, not only a boon on your patients and fellow men, but you will also earn their gratitude.

Twenty minutes is a short time in which to discuss this important subject and only the fringe of it can be touched. Arising, as this symptom does, from many different causes, I propose briefly to consider these, and to indicate the treatment appropriate to the several conditions.

Foetor of the breath may be either purely subjective or entirely objective, or the odor may annoy both the patient himself and those with whom he is brought into contact.

When subjective, it is, of course, experienced by the patient alone. Examples are met with in the peculiar sensations of smell experienced by patients suffering from perityphlitis, chronic constipation, obstruction of the bowels, liver abscess, or malignant diseases of the intestinal canal. Of the same order is the "curious burning smell" noticed by patients suffering with diseases of the brain and associated with abscess or tumor in the vicinity of the temporosphenoidal lobe.*

Objective foetor is observed by persons associated with the patient. In most instances the patient is himself also conscious of the odor. This is due to many causes, which we may now discuss.

There are different types of foetor.

- (1) The putrefactive type is the commonest. Its odor is like decomposing cheese. It occurs in such diseases as that from rhinitis in which the pus has become hard and cheesy, a condition associated usually with disease of the antrum, and called caseous rhinitis. A similar odor is found also when decomposing material collects in the naso-pharynx, pyriform fossae, and tonsil crypts, and in tertiary specific disease of the nose and pharynx.
- (2) The sulphuretted hydrogen type, which we all know from old association with chemical laboratories, is peculiarly obnoxious, and for this reason it is a favorite implement of warfare at political meetings. It occurs in gangrene of the lungs, in bronchiectasis, etc., and it is often so pungent as to cause the friends and even the nurse to avoid the sufferer.
 - (3) The garlic type, which every traveler knows who has visited

^{*}Hughlings Jackson and Purves Stewart. Brain. 1899; Campbell Thomson, British Medical Journal, December, 1907.

Spanish or Italian countries, or who has associated with individuals who eat onions. This odor is also apparent in those who take such drugs as bismuth and arsenic regularly. Ladies who take arsenic for cosmetic purposes should be warned of its deleterious effect.

- (4) The sweetish type is one of the diagnostic signs of glycosuria, and is generally associated with the presence of yeasts, etc., in the throat and nose; also in beer drinkers.
- (5) The toxic or hepatic type is associated with various forms of bacteria, such as the *Bacillus butyricus*, which is found in the mouth, nose, and fauces of dyspeptic "bilious" people, and also in those who do not properly masticate but "bolt" their food in an irrational manner, or those who do not clean their teeth.

Foctor of the breath may further be classified according to the different regions which are responsible for its source. These are the mouth, nose, naso-pharynx, larynx, and lungs. Foctor is also due to general constitutional disturbances.

The common causes of foul breath may thus be briefly summarized:

- (1) Diseases of the nose and its accessory cavities, causing nasal obstruction and mouth breathing.
 - (2) Imperfect deglutition.
 - (3) Oral and lingual affections.
 - (4) Diseases of the teeth and gums.
 - (5) Diseases of the tonsils.
 - (6) Chronic suppuration of the middle ear.
 - (7) Affections of the naso-pharynx.
 - (8) Diseases of the lungs.
 - (9) Foreign bodies in the mouth, nose pharynx, or larynx.
 - (10) Constitutional causes.

Nasal obstruction, or mouth breathing, may be due to adenoid growths, enlargement of the turbinal bodies, deviations of the septum, and spurs or outgrowths of the septum. All these cause not only imperfect ventilation through the nose, and the collection of more or less putrid secretion, but they also give rise to mouth breathing, perverted secretion, and dryness of that region.

Some diseases of the nose cause a specially pronounced odorfor example, rhinitis sicca, which arises when the secretion is impaired or diminished in quantity or quality. A similar condition is found in atrophic rhinitis, where actual structural degeneration of the mucous membrane has taken place; in caseous rhinitis, where the pus and debris are charged with various forms of molds, yeasts, and putrefactive bacteria, such as Aspergilli torulae and the B. butyricus; in chronic diseases of the accessory cavities, where pus is lodged in the maxillary antrum, or the ethmoidal, frontal, or sphenoidal sinuses, and in tertiary syphilis, with necrosis of the ethnoid or vomer. In septal perforations, whether from operations, from tuberculosis or syphilis, there is also foetor, and the same is found when polypi and sinusitis coexist. Generally speaking, foetor may be present in any malformation of the nose which interferes with free discharge and proper ventilation.

Another disease attended with foetor is chronic epistaxis, especially the "leaky" form, which is occasionally found in plethoric individuals and in those suffering from portal obstruction, also in dysmenorrhoea. This form of epistaxis also occurs in cases where fibroma or sarcoma are present. The blood adheres to the mucous membranes, soon becomes septic, and so creates an unpleasant odor.

Before dismissing nasal disease as a cause of foul breath, I wish to mention a form of nasal obstruction common in adolescents which is not a real obstruction. The patient experiences the sensation of blocking. The condition arises from desiccation of the mucous membrane in roomy or wide nostrils, whereby its sensitiveness is lost, and the friction of the air current cannot be felt. It may be the result of a too energetic treatment of the turbinals by the galvano-cautery, or it may be due to constitutional causes, such as anaemia; it also arises from neglected infantile snuffles, or there may be an unusually patent channel. In all these conditions there is deficient secretion or exudation, and in this way there is afforded full opportunity for bacterial growth.

Imperfect deglutition causes accumulation of food in the mouth, round the teeth, in the buccal pouch, the tonsils, behind the soft palate, in the pyriform fossae of the larynx, and in the glosso-epiglottic and hypo-epiglottic fossae. Such conditions generally arise from paralysis of the muscles, especially that form which follows diphtheria or any of the fevers. It may also occur from habitual carelessness in swallowing. Some people do not completely empty the mouth before refilling it, and are very inattentive to oral

hygiene. In all these instances the retained food undergoes decomposition, and the foetor so produced contaminates the breath.

Oral causes of foetor should be divided into two great classes, viz., those connected with the tongue and those connected with the teeth.

As regards the lingual causes, first may be mentioned a furred tongue. This may be merely a local manifestation of disturbed digestive functions, or it may be a local trouble by itself. There are several varieties of furred tongue.

- (1) The hypertrophied condition of the papillae seen in "black tongue" is a pigmentary deposit in elongated papillae which are undergoing keratinoid degeneration. The cause of this condition is not known.
- (2) The conditions in which accumulations of bacteria, such as yeasts, *Proteus vulgaris*, leptotrix, etc., congregate on the tongue.
- (3) The state in which a superficial thickening of the epithethis condition is pronounced we have what is called leukoplakia, lium has taken place, and which varies very much in character. When recognized by Fournier, Butlin, and others, as frequently percancerous.

There is also ulceration of the tongue, which may simply be due to the irritation of a tooth or a symptom of digestive disturbance; when deep ulceration is present, it is most likely due to the breaking down of a malignant growth or to tubercle or syphilis. The diagnosis in some cases is difficult, but as a rule tubercular ulceration of the tongue is shallow and not deeply excavated. It has well-defined edges and occurs without much pain, while specific and malignant ulcerations are generally painful. Histological examination of the scrapings from these ulcerations will settle the diagnosis*

As regards the dental causes, we have:

(1) Pyorrhea alveolaris (Riggs disease), which may be acute or chronic, and often exists without actual disease of the teeth, being generally referred to as "spongy gums."

Tartar, and, later on, pus are formed and collect between the gum and the tooth, and little pockets result which lead to recession

^{*}See case reported by the author, Medical Press and Circular, December 12, 1906

of the gum. The roots of the tooth are exposed, and the affection may result in caries. Administration of mercury often causes this condition. Pyorrhoea is associated with various bacteria, of which Spirochoeta refringens and B. fusiformis are the most prominent.

- (2) Decomposing food, tartar or pus between the teeth and at the seat of caries.
 - (3) Caries of the teeth and retained stumps.
- (4) Imperfect and cheap artificial dentures and neglected hygiene.

As regards the tonsils:

- (1) The most common cause of tonsillar foetor is a change which takes place in the lacunae or follicles. These become filled with pearly masses of dead epithelial *debris*, and loaded with bacteria or particles of decomposing foods. Such lacunar accumulations can be expelled by pressure, and are thus distinguished from a keratosis, which is closely adherent; in this latter also there is not necessarily any odor.
- (2) Acute ulceration of the tonsils is not associated with any definite type of foetor; it is in the more chronic forms where the odor is so unpleasant.
- (3) Malignant growths and tertiary syphilitic disease of the tonsil itself do not cause foetor at first, but these diseases soon invade the surrounding structures, which interferes with deglutition and favors bacterial activity; the foetor then becomes pronounced.

As regards chronic suppuration of the middle ear, this often causes foetid breath by the stinking pus getting into the naso-pharynx through the Eustachian tube, and keeping the naso-pharynx (which in healthy states is sterile) in a septic condition.

Affections such as adenoid growths, simple and malignant neoplasms in the naso-pharynx, cause a foetid breath by interfering with the proper movement of the parts, by accumulations of secretions, and by obstructing the natural ventilation and drainage.

In the lungs putrefactive changes take place in such diseases as bronchiectasis and pulmonary gangrene, causing a most pungent and offensive odor. The smell of bronchiectasis is a mixture of sweetness and stink.

To be concluded next month.



SOME HINTS FOR DENTAL STUDENTS.

BY L. P. HASKELL.

Do not use German silver for practice work, as it is too stiff. Use sheet brass, the soft, gauge 28, cut in strips two and half inches wide.

The horn mallett, as it comes from the factory is useless, as no use can be made of the pointed end, and the head is too large. Saw off at a point where it is about three-fourths inch in diameter, and file a round end with rubber file.

Make the model flaring so it will drop from the mold; never to lift out. Get a can of the Chase molding sand, for sale at all depots. It is oiled and always ready for use.

Use a molding ring five inches in diameter, two and one-half inches deep, found at the dental depots.

Use a small potato masher for packing, having sawed off the knob, using this end around the sides.

Babbitt metal from a correct formula, as made and sold at the depots, is the only alloy that has all of the five requisites for a dental die, viz.: non-shrinkage, hard so as not to batter, tough so as not to crack, make a smooth die, and melt at a low temperature.

The counter die is five parts lead and one of tin, and stirred until it begins to crystallize.

Begin swaging at the tuberosites, then in the palate. Cut a slit from the outer margin at the median line to top of ridge for two reasons. Here is the weakest point in the plate, where breaks occur. But cutting, lapping and sôldering after swaging, the plate is doubled in strength. Then another advantage is in saving of time and trouble in undercut cases. To solder, pry open the slit and apply plenty of borax, reswage, lay the solder on the inside and apply heat at the outside, drawing the solder through.

In wiring the plate, use 18-guage wire, fastening it to the plate,

as a starter, along the margin on the right side, with two wire clamps. These clamps are easily made of small common iron wire, using a piece one and a quarter inches long, flattening the ends with a hammer, and doubling it with flat-nosed pliers, leaving a loop at the double. After thus fastening, solder, then holding the plate on the model or die, fit snugly with the pliers for an inch or to the median line, clamp and solder then, one and one-half inches at once, until all soldered. File the margin to a finish.

There is great difference in the working of gold and silver solder. Gold solder does not melt until the plate is nearly red hot, then melts and is easily flowed.

Silver solder melts long before the plate is hot enough, so rolls into a ball.

In soldering, if the solder melts and will not flow, stop and apply more borax, the lack of which prevents the solder flowing on an oxidized surface.

After annealing or soldering, drop into sulphuric acid, equal parts of water. Does not need to remain.

For plate work, use six or seven-inch file, No. 3, with a handle. In filing aluminum, use an old rubber file, as it clogs a plate file.

OVER-SPECIALIZATION.

BY FRANK DERBY PIERCE, D. M. D.

A woman's scream disturbs the night quiet—the windows of the adjacent dwellings are thrown up; from one of the houses comes the sound of breaking furniture, punctuated by shrill feminine cries. The male inhabitants hastily don their clothing and converge towards the troubled home. At the door a woman stands, moaning "my husband, my husband." The men crowd past and up the stairs and there, in the wreck of what was yesterday a pretty bedroom, is indemnity for their broken rest. Instead of the kindly neighbor of former days, a maniac, half-clad, is reeling about the room, overturning chairs, casting down bric-a-brac, the while babbling fear-some oaths intermixed with baby talk. The men close in, a short struggle, and the new menace to the community's peace is tied hard and fast. The physician, hastily summoned, pronounces his decree,

"worked out," and gives the stricken wife the choice of private sanitarium or public asylum for her husband.

An attempt for word pictures—out of place in a dental journal—not so, gentlemen. This is the last chapter in the professional life of a brother dentist.

The increasing frequency of this sad story among dentists leads one to seek the cause. In a word, it may be traced to the modern prevailing tendency—specialization.

The dentist of the past generation was both general practitioner and specialist. He was considered a specialist inasmuch as his field was limited to the mouth and its environs, a general practitioner also for he did a bit of everything, from extracting a difficult root to applying the clumsy and now obsolete jack-sorew to force out an insetting lateral.

This tended to combat monotony.

Today specialists claim the following departments: Orthodontia, extracting, pyorrhea, prosthesis, and ceramics. Even the gold-filling is passing out of the practitioners hands into those of the laboratory assistants, who, from a wax impression casts the filling and returns it, finished and polished, to the operator, to be cemented into place.

What then is left to the general practitioner?

The drearily monotonous plastic filling and the eye-racking search for minute root canals.

Without entering into the question of how much this specializing detracts from the all-around mechanical skill of dentists, let us examine into the daily work of the general man.

Think of the fearful monotony of hour after hour inserting amalgam fillings. A busy man sometimes puts in twenty amalgam fillings in a day. Indeed, he must complete a large number, for the compensation for this class of work is small; the best paying patients have departed to the specialist.

Again, recall to mind those dreary Saturdays when for eight or nine hours you worked over children, treating six-year molars.

This is what the general man is doing six and sometimes seven days a week. Is it not surprising that gradually the potentiality of the brain is impaired?

The remedy for these conditions will only be applied when the large body of dentists realize that, from a psychologic point of view

at least, the specialist is their enemy. The smallest flight in the direction of new conquests exercises a greater stimulus than all the resources and lights of science within known limits.

At present, however, good, faithful men are drifting toward the asylums and sanitariums for no other reason than that they have passed the speculative and experimental work on to others, leaving for themselves only the monotonous, unstimulating dross.

NEW ORGANIZATION OF CHICAGO.

There has been organized in Chicago a new feature in Dental Association work. This organization is to be known as the Chicago Dental Golf Association. Lee K. Stewart, President; Don. M. Gallie, Vice-President; Charles Meerhoff, Secretary, and Al. Johnson, Treasurer. Of course, this organization will detract a little bit from cast gold inlays and a few other things that are purely dental. However, in Chicago, where two or three are gathered together in the name of Dentistry they will talk more or less, but I guess at the first meeting that was held of this organization, which took place on Wednesday, September 16, there was a busy lot of chaps and they found it almost impossible to revert back to the question, whether sulphocyanide was a destroyer of bacteria in the oral cavity, or whether the pressure that was brought on the gold in casting gold inlays would prevent it from contracting too much to allow it to go into the cavity.

The above questions were all laid aside while the caddies gave instructions to the various members of the association as to how certain plays should be made. Louis E. Bake got the first prize. They say that Bake took his own caddy with him, the caddy giving orders as to how the strokes should be made. Bake executed a little bit better than did Dr. Stewart and his caddy. However, it has been recognized for a long time that Bake and Stewart were extremely handy with the shinny clubs.

I understand that there are a number of good golf players and many are prepared to take great pleasure in such a day's recreation. But I question if Dr. Bake will be able to get as good a handicap again as he had this time.

We wish the association success.

HOW MASONIC SECRETS LEAK OUT.

(AS TOLD BY THE KID.)

BY R. B. TULLER.

My pa is a Mason. He sez when a man is a Mason he is all O. K. an' on the squair.

Now, my ma is a womern, an' she has got a kind of a leary streek in her, an' she sez, "Huh! Bi Jinks is a Mason, ain't he? You don't take to him very hard."

Bijer Jinks, you see, is a kine of a ole odd-job hobo, what has scene better days—he sez. When he gits hungry er dry hee's chasin' pa up an' makin' secrit sines an' sayin', "My God, ain't ther no he'p fer a poor, hard-workin' man?" Pa hain't got no uste fer him. He sez hee's a Klu Klux Klandestine Mason what ain't no good. But pa gits him to shave the lawn now an' then, an' when he gits 10 cents he goes an' gits two gallons of beer in a can, an' drinks 'er all up at onct, an' don't keep none fer a rainy day. That's Bi Jinks.

Then ma sez, "How 'bout Jed Smitchen that wuz sent to the pen fer imbezzlemunt? Wassent he a Mason, an' a hi up one?"

Pa felt kind of stung er sumpin, an' he sed, "Oh, well, we hav some back sledders, same as yer cherches. But say, ma, why do you allus hav a knoc cummin' when I speek about Masons? I cud knoc sum ov your cherch peepul perty hard if I wanted to."

Ma sed they wassent all saints in the church, an' she noticed sum was Masons at that. Then she seen pa was gettin' kine of sore, an' she hedged a little an' sed, "Joel, it strikes me that ther is a goodeel ov human nature in most all kinds ov human peepul. I gess Masons is all rite—as good as the average; but what is it secrit fer if it is so good?"

"Well," sez pa, seein' he'd ben handed a connungrum, "all I know 'bout it is that the wisest man that ever was got it up when he was bildin' the tempul, an' he sed, 'Let 'er be secrit fer ever an' ever, an' don't ever let in no wimmen.'" Then he wunk a wink at me an' sed, "Gess he knowd it woodent never be enny secrit if wimmen got a holt ov it." Then he lafft like it wuz a new joke. But ma flared up an' sed, "Oh, punk! I wanter tell you that wimmen can keep secrits

as well as men, if they want to. They don't allus want to. I've got some secrits I've never told you, an' I don't intend to, if you air goin'to keep some from me. Oh, I hain't got no pashunce with good things all lockt up wher they don't do no good to humanity."

"O, well," sez pa, "the Masons do a lot ov good to menny widers an' orphuns, if they do hav secrits. You see, you don't know."

Ma thot he sed merry widders, an' I gess she didn't hear orphuns at all, for she left them out an' sailed into the merry widders until pa sed he didn't say ennything about merry widders; some waz merry an' some was sad perhaps. "An' some sod," butted in ma, an' then she husht an' got her wind a little, an' then cum agin. "Oh, yes," she sez, "that wisest man; seems to me the Bible speeks of him. Gess he had a reason fer not wantin' his wife to b'long. The tempul woodent ben ½ big e nuff. Must be somepen' queer in them doin's in Masonry if a man can't tell his ownly wife, which he took as one bone an' one flesh. Must be sumpin' to be a shamed of."

"Nope," sez pa, "not a thing. I wooden't be ashamed to have you heer an' see it all enny time, only I can a sure you it wooden't a ford you enny grate satersfaction. Its teachings are the best. In fact, if you'll take a othe, same as I done, not to tell enny one, I jest as soon tell you the hull bizness; only they is sum pass words an' some sines and langwidge I can't tell you, an' you musn't ast." Ma a greed. An' then pa goes to work an' counts me out by sayin', "Well, we'll git the boy off to bed first; it don't interest him."

Wooden't interest me! Say, mebby you don't kno me; I went to bed, but little Johnnie wuz on the spot er near e nuff to lissen an' peek, an' I didn't take no othe not to tell.

"Come, skidoo," sez pa to me, an' I skid; but it's jest as easy to skid back as enny.

"Well, the first thing is the othe," sez pa, an' you hav to be in a white robe. "Huh!" sez ma, "that's easy. It's 'bout time fer bed enny way." "Yes," pa sez, "I can tell it all in bed jest as well." An' so while ma got inter her white robe, pa got inter his perjammers.

Pa then got the Bibel and two glasses of water full, an' sed to ma to neel down. So ma she neeled by the bed, an' pa put the Bibel on her head. "Now," he sez, "you gotter hold her steady an' not let it fall off. Now stretch out your arms an' hold a glass of water in each hand an' if you drop the Bibel er spill the water, it is all off.

That's the way we all has to do. Ma sez, "All right," an' she ment bizness, 'cause she wuz goin' to hear them secrits—so wuz I.

"Now," sez pa, "some on it is in Lattun, but all you hav to do is to jest repeet what I say. Now alreddy. 'I, Joel Bunkum," an' ma sez, "I, Joel Bunkum." "No, no," sez pa, "you must use your name; begin agin. 'I, Joel Bunkum," an' ma sez, 'I, Mrs. Joel Bunkum." Then pa sez, "Do here under an' between"—an' ma sez it—"most sollumly sware"—an' ma follered—"that I hope to have my frunt teeth knoct out, my hare pulled out by the roots, an' be struck dum if ever I, by word, sine, deed, vive voce, or in enny modo et formu, let go of enny of the secrits now about to be reveeled to me." Then pa strung a hull lot of Lattun together, but ma wuz gaim an' she strung after him and wound up with. "And I will remember the penulty of my othe, and I am in accord with perpetuum stentium, A men." (The way pa got so much Lattun he went to a art school in the Lattun quarter.)

Well, sir, ma wuz as sollum as Sollumun if not as wize, but pa wuz chucklin' all the time behind her back an' I had my 'spicion that he wasn't jest then on the squair. The fact is, he thot she wood drop the book er spill the water, an' that wood let him out. When ma wuz nervie an' gaim he wuz wunderin' when (or how) he wuz goin' to get off. Then, when she sed amen, he said, "You will now without change of persition, kiss the book."

Ma ain't all the time a ezzy mark an' in about ten seconds she saw how impossibul it wuz, an' she jist dumpt the book on the bed, riz up and turning on pa, whom she cawt grinning', an' she jist dasht those waters plum in his face an' 'xclaimed, "You meen old frawd!"

But pa wuzzent sore. He jist wiped off the water an' sed, "Say, don't be too prevous now, er I won't tell them secrits—tho you won 'em all O. K." Ma wanted to hear 'em an' so she wuz soon passified an' they blew out the lite, an' "little Johnnie" had a chanct to get nearer.

"Well," says pa, "honest now, this is what they done to me. They dresst me jist like Adam in the garden, except they put on the blind-fold—over my eyes. Then two fellers wallst me a round the room, runnin' me into everything there wuz to bump (an' there wuz everything), an' then they led me up to fellers who wanted to git off a spiel."

Ma sed shame and snifft several time as pa perceeded.

"Well," pa went on, "when they got thru wit the rag-chewin' they took off the blinder and sed I would take my first step as a 'prentice; an' the first a 'prentice had to do wuz to carry stone to the masters. I carried three, each bigger than the first. Then they led me to a whopper an' sed 'Take that.' I couldent budge it. "Try again an' again,' they sed. 'Git holt so.' Then I got a good holt, made a big heave, an' the thing give way all of a suddent, an' I went over back wit' the joke stone on top of me. It wuz somewhat embarrassing to me an' the fellers lafft."

"'Twas shameful!" sez ma; but she giggled just the same, an' it wuz ketchin', an' I nearly bust, an' almost give myself away.

"The hi muck," pa sed, "then akted angry caws they lafft an' he whackt his hammer, and shouted 'Silence! This is no joke. It is to teech our canderdate a lessen. "If at first you don't succeed," etc. Menny seemin' onpossibul things would be overcum by not givin' up."

"The next thing was to mix mortar an' to lern to do it an' not git dobbed. There wus the stuff on the morter bed. 'Mix,' he sed. I didn't hav' a thing to mix with but my han's, and so I stood an' done nothin'. I knew there wuz some way out of it. There wuz. The Hi Muck sed, 'Sir, this is to lern you the important fack: How helpless we sometimes are without help."

"Then the feller sed, that wuz to lern me that a man shoodent do no union, an' they shoved the others aside, threw me into the morter, grabbed the edges of the morter bed, which was a canvass sheet, an the next thing it wus which an tother, wit' me an' the morter, which wood hit the sealin' first. When they got tired, I wuz a site."

"That wuz a dirty shame," sez ma. But I heerd her twitter jest the same. "It wuz morterfyin'," sed pa, "but no uste to git mad. I did, tho, an' wuz goin' to swat one of them fellers, when I got some more churnin.' The Hi Muck sed it wuz to lern me how eazy it wuz to git mixt up into trubble if you wasn't awfully careful. That's what I thot, too."

"I wuz kine of out-winded an' they led me to a chare, an' sed 'Sit down an' res." I set down—an' got up quick. The chare wuz H-O-T." ("That was a burnin' shame," sez ma.)

"Then the feller sed that wuz to lern me that a men shoodent do

every fool thing he wuz told; an' rite on top of that a feller held out a lighted candle an' tole me to put my finger in it; but, smartin' vet. I tole him to go to-well, he didn't go, but they sed, 'Seize him, an' bind him to the wall an' let the ole ram gote teetch him a lesson.' They done it—tied me up to the wall, but the feller what tied me whispered, on the q. t., (straddle when he cums an' say nothin'.) cawt on, and now here's where the gote cums in. It took four men They pinted him at me, with the spot lite on me, an' let him loose. With snorts an' eyes blazin' he cum. You bet I straddled. But, ma, that was a joke wall of paper, an' when he struck it he went thru, an' me on him; fer the feller cut the rope so's to drop me on his back. Sure, they all has to ride the gote. I rode; but in bout two jumps furder he stopt suddenly at the edge of a tank of water, and in I went kersouze. I wuz glad I didn't hav my close on: an' I was glad to git some of that morter washed off, tho' the shock wus simply shocking."

Gee! Me, little "Johnnie on the Spot," wuz stuffin' my shirt in my mouth to keep frum breakin' out; an' it wuz wurse when I heerd ma laffin.

"Then," sez pa, "I wuz tole that I was now a full-fledged, baptised 'prentice, an' to git out an' git my close on, and be reddy fer the next degree."

Here ma broke in, "'Fore you tell enny next degree, Joel Bunkum, you'le take a othe to me to tell the truth. You ain't no Mason. You jest jined the Supreme Lodge of Annerniases; an' I'll bet you are the Hi-Muck-Cock-a-Lorem in that alreddy. I am ½ a mind to kick you out of bed. You air the stringinest man I ever knew! Joel, you are punk!"

Then I snuck an' got into bed, covered my hed an' lafft all I dassen't before. Gee! but I wisht I cud seen dad doin' them stunts.



PRINCIPLES AND PRACTICE OF FILLING TEETH WITH PORCELAIN.

A BOOK BY JOHN Q. BYRAM.

PUBLISHED BY THE CONSOLIDATED DENTAL MANUFACTURING CO.

It is with extreme pleasure that I am at this time permitted to review the above titled book, for two important reasons: First, because it is a work of one who I believe to be an honest and sincere student of the subject to which his book is dedicated. He is able and efficient and stands out pre-eminent in the field of dentistry as a scholar and teacher. With one hundred and thirty-two illustrations and one hundred and twenty pages of well written and well illustrated work, the author stands out as an advocate of porcelain as a material for filling teeth. He does so with a conservative and in the true spirit of one who has taught, tried and studied the subject thoroughly, and it leaves the reader in no doubt as to the place this important work has in the field of operative dentistry.

On page 19 of this work the author has given us in brief eight reasons for the advantages of the use of porcelain as a filling material that no one could take any exceptions to and illustrates in the most concise manner these advantages over other material for the operations under consideration. Following these eight advantages he gives seven reasons to its disadvantage.

The above illustrations of the advantages and disadvantages shows the broad intellectual way in which the author treats the subject, and shows that he not only has studied the advantages of porcelain, but that he thoroughly understands the disadvantages. In this we must appreciate the author's efforts in trying to give us the advantages and disadvantages in a clear and comprehensive manner of what we can expect in such operations and what we must avoid in the use of this material as a means of filling teeth.

In the study of the rise, or, we might say, the mad rush of the

profession to the porcelain idea of filling teeth of a few years ago, and how much the author and many of his confreres in the dental profession have discussed porcelain art in dentistry, it surprises all that the author has treated the subject in such a broad, liberal and comprehensive way as to make the work not only a readable, but a text-book on this method of filling teeth. It makes us pause at the extraordinary composure that the minds of many of our teachers and practitioners have in the selection of the foundation upon which the principles and practice and new methods spring into our professional life. So we need have no fear of any one with good common sense going astray on any particular subject.

In the preface of this work the author states that he believes porcelain is the best material for filling cavities in incisors and cuspids. We would naturally expect from this statement that the author had confined himself in his principles and practice of filling teeth with porcelain to the six anterior teeth, but he gives us illustrations and methods of filling bicuspids, which seems to indicate that he approves of extending this method farther back than the six anterior teeth, and even extends this operation to molars. In Fig. 59 he shows the preparation of a cavity in the bicuspid that I think the conservative porcelain worker would not attempt except in very exceptional cases. Most of us are willing to concede that while the expert manner with which the author is able to perform these operations would make it a simple matter for him, it would be quite impossible for the average porcelain worker, and those below the average, to attempt any such filling under the majority of circumstances. same criticism might be offered in Fig. 61. With the ingenious methods that have been adopted for casting gold inlays, we would consider just such cavities better prepared and filled with the casting gold inlay methods than that of porcelain. Of course the idealistic operator and teacher in ceramics can accomplish more than the average individual who has not, nor ever can acquire, the technique with which to do such operations as illustrated in these particular types of cavities just referred to. Notwithstanding the great wave that has just swept over the dental profession, we, when we look around, see but few who have become experts and skilled to anything like per-In the art of filling teeth with porcelain we are almost convinced that the cavities just referred to are not within the range

of the average dental practitioner, and that the conservative treatment of just such cavities can best be accomplished by that method that has been introduced by the ingenious mind of William H. Taggart, who has given to the dental profession one of the most reasonable, most brilliant and yet the most simple method for filling certain cavities in teeth that has yet come to us in any method, modes or means known in the mechanical arts.

But there is one thing that the dental profession will never lose sight of, and that is that we have in porcelain art one of the most artistic means and materials for filling certain cavities that the dental profession can or ever will have. Therefore in reviewing this book we can commend its method and its material to the dental profession as a means of producing the highest artistic results in the practice of filling teeth.

Since we recognize that filling of teeth with porcelain is an essential feature in operative dentistry, and that it will always be taught as a branch of operative procedures in dental colleges, we can commend this little volume as a text-book of the highest value of any text that has been produced on this essential subject. It is a book of no small amount of merit and it is exactly what the author intended it should be in the very early conception of the work, that it should be a text for both student and practitioner. G. W. C.

DR. E. J. PERRY LEAVES CHICAGO.

It is with more than passing regret that the profession of Chicago loses one of its honored members. Dr. Perry, who has been a practitioner of dentistry in the city of Chicago, has decided to give up practice and take up his home in the state of Idaho. Dr. Perry's leaving Chicago is one of no small moment to the profession. Those who have known Dr. Perry personally and professionally appreciate his worth as a man of extraordinary ability as a dentist, as a teacher and as a companion. And those of us who have known Dr. Perry for the last ten or fifteen years are aware of his keen mind and humorous expressions with much that was of the highest quality of intellectual conception of prosthetic dentistry especially, Dr. Perry has been a noted teacher in prosthetic dentistry and perhaps no man in dental college teaching impressed himself more forcefully upon the student than did Dr. Perry. He was always a warm friend of a

young man and had a great influence on his ethical and professional attitude towards the world at large.

The scientific treatment of any art consists of in applying the principles furnished from the several sciences. This I think Dr. Perry displayed as clearly as any teacher or lecturer that we have in our profession. And in honor of Dr. Perry's departure from Chicago on the night of September 12, the dental profession of Chicago tendered a banquet in his honor, and the good fellowship, the kind and tender expressions of friendship and the wholesome demonstration was indicative of the love and esteem that the profession had for Dr. Perry in and around Chicago. Dr. Perry has rendered long and valuable service to his profession, and we hope that his retirement will be one not to be regretted, but that his life will be as full and happy as it has been in his professional career. May every success follow him in his new field in the future as it has in the past. Dr. Perry's departure from Chicago by no means means that he is lost to his friends, but he is lost to the dental profession as one of the highest types of educators along ethical and idealistic lines.

REVIEW OF DENTAL PATHOLOGY AND THERAPEUTICS.

PUBLISHED BY LEA & FEBIGER.

We have with more than passing interest reviewed Henry H. Burchard's latest edition, rewritten by Otto G. Inglis, D. D. S.

It would be quite impossible to give in detail a comprehensive review of this work, and to review it in the light that it should be would perhaps mean to be a harsh critic. However, I wish to sav that my criticism of the book is not done in the way of fault finding, but it is done for the purpose of calling attention to the work in a way that it will make those who study the subject matter in this work do it with a critical and student honesty that must necessarily come if one gets the best out of the subjects of pathology and therapeutics.

In the very first chapter of this book in the discussion of immunity the author speaks of Ehrlich's theory as the lateral chain theory. The average individual who has been a student in the line of later date pathology would understand the meaning of the lateral chain theory of immunity, but if a student wanted to look this subject

up further he might have some difficulty in finding the lateral chain theory because it is always referred to as Ehrlich's side chain theory. Now I suppose that the author had good reason for using the term in the manner that he did, but for a student I would question the advisability of using it in the manner that the author has in his work. the explanation of this theory, quoting the author's own words, he says, "Ehrlich's lateral chain theory of immunity presupposes the presence of the atom groups of protoplasm surrounding a complex group of atom groups, the nucleus, each atom group having affinity for a particular form of substance presented to it." With such explanation as this I think it would be quite impossible for a teacher in pathology to elucidate what the author means in the discussion of the so-called Ehrlich's hypothesis. There are so many sentences and paragraphs in the book written in about this way, that it makes it very difficult for one to understand the true meaning of the author. It seems all the time that he had gotten into deep water and was floundering around to keep his head above the waves. It is apparent that the author has tried to explain the meaning of immunity and tissue changes in certain pathological conditions, without fully comprehending the fundamental principles that underlie all biological phenomena as we at the present time understand them. He has also woven into his subject matter a lot of terms which would be difficult to elucidate to the student body and at the same time to keep in touch with the author's text.

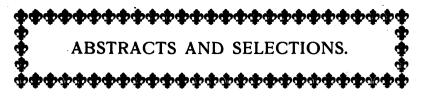
In the author's explanation of necrosis, he states that necrosis signifies death in tissues in mass from any cause. In the very next phrase he tells us that necrobiosis means the death of the cells through the process of atrophy or degeneration, which are successive changes leading to death. If the author felt called upon to use this term it would have been far better for him, and very much better for the students, to have quoted Schultz's explanation, who was the coiner of the term, and which was farther elucidated by Virchow. This author (Schultz), in discussing the subject of the difference between life and death, says, "Death never appears instantaneously. There is no sharp limit separating life and death, there is rather a gradual transition between them; in other words, death undergoes development. Normal life, upon the one hand, and death upon the other, are merely the remote end-stages in this development, and are united to one another

by the uninterrupted series of intermediate stages. The two endstages may be easily and sharply distinguished, but it is impossible
to draw a sharp line at the place where life ceases and death begins."
This term, as has previously been stated, was introduced into pathology
and was somewhat discussed and modified by Virchow in 1871.
Virchow's modification of the terms necrosis and necrobiosis. In
speaking of necrosis he says, "When a part of the tissue is dead and
the mass is retained in its original form we call necrosis, while
necrobiosis means the death of the part with the destruction of the
mass." Now it seems to me that this explanation would have been
far better than the one the author has given in this book. There are
many of the newer terms, or I might say later discussions of pathological terms in general, that are purely orthodox and are worthy of
deep and thoughtful study.

Perhaps I have been a little harsh in my criticism of this work, but I wish to state that the work is not, as I have above stated, entirely free from criticism. On the other hand, in the chapters on malformation and malposition of the teeth we have some of the best illustrations and explanations that we have had upon this very highly and important subject. In that part of the book that treats of dental therapeutics I could find much to criticise from my point of view. Dental pathology and dental therapeutics have in the past prevented the calling of dentistry from being looked upon as a learned profession. But I think the book that we have under discussion on the whole has raised our standard a little bit, and that is saying a great deal, considering that we at the present time are on the crest of the wave of the mechanical age.

I can say with true sincerity of my belief that this edition of the book is far in advance of many of the previous editions, and it can be made a useful text-book in dental college work. It should be read and studied by every dental practitioner. I have picked out in the work some of the vulnerable points, not with a feeling of harshly criticising, because no man in the dental profession should ever be criticised for an attempt of a work of this kind. I offer my compliments to the author and the publishers for this work.

G. W. C.



SHOULD THE PRACTICING PHYSICIAN OR DENTIST OWN STOCK IN PROPRIETARY MEDICINES?

The Medical Consensus is highly gratified over the receipt of letters and comment in regard to its attitude against practising physicians and dentists owning stock in proprietary medicines. From all parts of the country we have heard in this connection, and that our position is in the main enthusiastically endorsed is not surprising to us. On the other hand, we should have been puzzled to hear otherwise, since such schemes are unethical on their face and careful physicians and dentists understand them in this light from the outset.

In our original statement of this question, we called attention to the fact that there are organizations of physicians and manufacturers offering stock to dentists in various cities, manufacturing a number of proprietary medicines in imitation of standard proprietary, pharmacopæal and national formulary preparations. We showed that these doctors and dentists prescribe as far as possible only those preparations made by the corporation in which they own stock. Druggists tell us that the wholesale prices charged for these preparations are enormous, and that an increase of 30 to 50 per cent in the cost of prescriptions written by the doctors is a result. Most of the doctors and dentists belonging to these corporations are first class, ethical men. But the question arises, "Is the scheme ethical?"

We think it has been conclusively demonstrated that the effects of prescribing preparations in which the prescriber is financially interested are altogether injurious to all parties concerned. First, the effect on the druggist is undesirable, for every time the doctor prescribes one of these preparations he loses caste to a certain extent with the druggist. And the druggist is forced to charge his customers an increased price to cover the doctor's profit in addition to the manufacturer's legitimate returns. The increase is embarrassing to the druggist and injurious to his business.

But a more serious matter is the effect on the patient. Sooner

or later people will find out the connection between the prescriber and manufacturer. The result is loss of confidence in the complete integrity of the doctor. Suppose a doctor earned through his small block of stock a profit of \$10 or \$20 a year, what is that compared with the risk of losing even one good patron?

It seems to us that so far as ethics go this virtual rebate system is more deplorable than "advertising" or many other unethical procedures. For when we come to the last analysis, the essential elements involved in the case are:

- 1. An invasion by the doctor into the field of profit of his professional brother, the pharmacist.
- 2. A constant temptation to the participating doctor to prescribe his company's medicine regardless of exact indications.
 - 3. The placing of the prescriber in a false position with his patients.

Therefore, this journal is glad to note that these co-operative schemes are not succeeding. Several of the smaller ones have gone out of business, and we understand that a widely advertised co-operative dentrifice concern is about ready to acknowledge the error of the so-called co-operative principle of selling mouth preparations. Professional men are now viewing this participating game in its true light, and are not taking stock, gratis or otherwise, in drug manufacturies.

We wish to again state that there can be no substantial returns for the small stockholder from these schemes, for they must be promoted by private individuals, who can at any time water the stocks of their concerns so as to make these stocks practically worthless; and who control matters so they can easily absorb all real profits in salaries, etc. The controlling promoters, of course, reap a large profit, because they make the doctor contribute cash to their capital and also work to make sales; but the prescriber's permanent returns can never amount to much, and he should prefer complete independence, to any trifling gain of this sort.

In conclusion let us ask: Is the doctor who owns stock in a dentifrice, for instance, which is advertised to the public ethically better off than the practitioner who advertises himself in the daily papers?

Also, if several physicians were to organize a company and sell

stock to all the druggists in your town so as to interest them in pulling for the organized doctors only, would these stockholders be morally worse than the doctor or dentist who owns stock in proprietary and patent medicines?

The Medical Consensus wants it clearly understood that it believes the few physicians and dentists who have taken stock in proprietary medicines have not done so deliberately, but have been drawn into it unthinkingly and without realizing the unethical phase of the matter.—Medical Consensus.

REQUIREMENTS OF AN ANESTHETIST.

BY A. W. GLASS, D. D. S.

The question that has been asked me is, "What preparation should the dentist have before undertaking to administer an anaesthetic?" I suppose the thought was especially of general anesthesia, and I will try to answer the question with that thought in mind, although my answer will apply perhaps equally well to local anesthesia.

The first lesson I think we should learn in our preparation would be that there is an element of danger every time a person is put under the influence of an anesthetic, and we should learn this lesson so well that we will never deceive ourselves into believing and telling our patients that there is no danger in order to get them to submit to an anesthetic for any operation. Let the patient demand the anesthetic; then if we should ever have the misfortune to have a patient fail to recover from anesthesia after we had done everything that could be done for their recovery, our conscience would be clear in the matter.

C. P. Pruyn, M. D., D. D. S., of Chicago, in an article published in the *Dental Review* for August, 1906, says: "The only safe anesthetist is the one who always appreciates the gravity of the case in hand, and who feels with each administration that he is taking his patient down very near to the gates of death, and that a little carelessness upon his part may deprive a fellow being of life, and possibly plunge a whole community in sorrow."

We will all admit, I think, that there is danger in chloroform and ether, but may we not be deceived into thinking that somnoform and nitrous oxide are perfectly safe because of their ease of administration and the usual quick recovery of the patient from their effects?

In an article published in the *Dental Review* for October, 1906, Dr. J. W. Ritter tells of an experience which he had with a patient who seemed to be in perfect health and an ideal patient in every way for somnoform. The anesthetic was administered and the operation of taking out a partly live pulp was performed; it then took him thirty minutes, using hypodermic injections of strychnine and nitroglycerin and artificial respiration, to bring the patient back to consciousness. I wonder how many of us would have been as well prepared as he was to meet the meet the emergency of such a case.

Our dental journals within the last year report the death of a patient at Rockford, Ill., after the administration of somnoform for the extraction of teeth, and our last *Dental Review* reports the case of a death on February 22, at Cedar Rapids, after the administration of somnoform for the extraction of teeth. This young lady was accompanied by her physician, who did everything within his power to revive her.

The second lesson in our preparation should be to learn thoroughly the composition of the anesthetic we wish to use, its action upon the organs of the body and danger signals from its use. We should know the antidote and restorative best suited, if such should be needed, and we should keep such antidotes and restoratives always on hand and in readiness.

The third lesson should be to ourselves to make as thorough a physical examination of our patient as would enable us to decide whether or not he is a fit subject for an anesthetic and not just give an anesthetic to any person who happens into our office and wants to be relieved of the pain of some operation, regardless of his condition.

We owe this preparation to our patients; they are placing themselves in our hands and we should be equal to the trust.

We owe it to ourselves. You have seen from the cases I have referred to that accidents do happen even from the use of somnoform, and if any of us should be so unfortunate as to have such an accident, I imagine the coroner or prosecuting attorney would ask us such questions as these: "Did you realize the danger of giving an anesthetic? Did you know thoroughly the anesthetic you were using, its action upon the heart, lungs and nerve centers? Did you make a thorough examination of the patient before administering the anesthetic?" If

we were not able to satisfactorily answer these questions and many more, we might expect very little sympathy from a jury.—Tri-State Dental Record.

METHODS OF ANESTHETIZING THE PULP.

- The pulp is wholly or partially exposed: Isolate the tooth with the rubber dam and clean it with water and alcohol. Excavate the cavity as much as possible, and if the pulp is not exposed, dehydrate with alcohol and hot air. Saturate a pledget of cotton or a piece of spunk with a cocain solution, place it into the prepared cavity and cover it with a piece of vulcanizable rubber, and with a suitable burnisher apply slowly increasing, continuous pressure from one to three minutes. The pulp may now be exposed and tested. If it is still sensitive, repeat the process. Loeffler states that "This pressure may be applied by taking a short piece of orange wood, fit it into the cavity as prepared and direct the patient to bite upon this with increasing force. In this way we can obtain a well-directed, regulated force or pressure, and with less discomfort to the patient and operator." Miller describes this process as follows: "After excavating the cavity as far as convenient and smoothing the borders of it, take an impression in modeling compound, endeavoring to get the margins of the cavity fairly well brought out; put a few threads of cotton into the cavity and saturate them thoroughly with a 5 to 10 per cent solution of cocain: cover this with a small bit of rubber dam and then press the compound impression down upon it. We obtain thereby a perfect closure of the margin, so that the liquid cannot escape, and one can then exert pressure with the thumb sufficient to press the solution into the dentine."
- 2. The pulp is covered with a thick layer of healthy dentine. With a very small spade drill bore through the enamel or direct into the dentine at a most convenient place, guiding the drill in the direction of the pulp chamber. Blow out the chips, dehydrate with alcohol and hot air and apply the syringe provided with a special needle, making as nearly as possible a water-tight joint. Apply slowly, continuous pressure for two or three minutes. With a bur the pulp should now be exposed, and if still found sensitive the process is to be repeated.

BY WAY OF THE APEX.

Recently a method has come into vogue which allows successful

anesthetization of the pulp by injecting the anesthetic solution around the apex of the tooth. The spongy alveolar process, which contains lymph channels, allows the ready penetration of the fluid. The injection should be made close to the bone, pushing the needle slowly toward the apex while the fluid is deposited drop by drop. No wheal should be raised by the injection, otherwise the benefits of the pressure from the dense gum tissue are lost.

As stated above, the protoplasm of the cell primarily transfers irritation, and, secondly, transmits absorbed materials. Therefore the anesthetic solution has to pass through the entire dentinal fibre before the nerve tissue of the pulp proper is reached. Consequently a certain period of time is required before the physiological effect of the anesthetic is manifested. This latent period is dependent upon the thickness of the intermediate layer of dentine. The successful anesthetization of the pulp depends largely upon this most important factor of allowing sufficient time for the proper migration and action of the drug.

Since the introduction of the cocain-adrenalin combination for the purpose of mitigating pain in operative dentistry, local anesthesia has achieved results which, considering its safety and reliability, cannot be obtained with cocain or any of its substitutes. From our investigations into the nature of the above combination, we are convinced that it is the safest and most effective means of producing local anesthesia upon a rational basis so far known.—Dr. H. Prinz, Dental Office and Laboratory.

METHOD OF RETAINING TEETH AFTER REGULATING.

BY W. S. LOCKE, D. D. S., CINCINNATI, OHIO.

Those of you who have done any amount of regulating know how difficult it is to arrange the teeth in a manner and with such an occlusion that they will remain where you put them after the retaining appliances have been removed. You are also familiar with the objections and dangers to these long-standing, mechanical retaining appliances. When worn for months, as is often necessary, we are likely to find decay underlying bands where cement has dissolved.

^{*}Read before the Ohio State Dental Society, December, 1906.

The tooth-brush about such bands does not do its duty, and when these retainers are removed you will find more or less spacing, to say nothing of the unsightly appearance. As these conditions have presented themselves time and again after teeth have been held in position for but a very short while, it has become evident that such methods of retaining are very unreliable.

About five years ago the writer took up the study of this subject to learn, if possible, more about the physical and pathological changes that take place while moving teeth and the cause of their return after releasing them, with the view of overcoming it by some treatment or operation.

It is well known that when great enough pressure is placed upon a tooth, the tissue in front of it is broken down and carried away by cells known as osteoclasts, and rebuilt (in the space left by the tooth) by those known as osteoblasts. Upon careful examination the writer first found that before any resorption took place the tissue was greatly compressed; even the bony substance (process) showed a great amount of elasticity. For example, in the separating of teeth for filling, the rubber plug or gutta-percha being a light and limited pressure, though it may remain for several weeks, does not cause resorption. septum of bone between the teeth only springs, and when the plug is removed, will push the tooth back to its original position. When greater pressure is placed upon this tissue than it can stand, then an inflammation is set up and resorption takes place nearest the tooth, while that tissue beyond is greatly compressed. If the pressure is released at any time, this compressed tissue recovers itself and pushes backward or returns to its original position, less that amount destroyed by resorption. This shows one reason why teeth move back. Again, when a tooth is moved but a short distance, and not beyond the circumference of its socket, it is hard to retain because the sides of the socket or process, acting as a spring, forces it to the center of the socket, its former position. On the other side of the tooth another condition presents itself which you will readily see is a cause for this backward movement. The osteoblasts do not replace the tissue nearly so rapidly as it is carried away on the opposite side, so that, in moving of a tooth, space is left behind it, with the exception of the soft tissues, which are dragged along, completely covering the cavity underneath.

This condition is more marked when a tooth, or teeth, are moved outward. The same condition is presented when the teeth are partially drawn from their sockets, as in drawing a cuspid down into position. The plan I have adopted for overcoming these conditions is as follows:

After the tooth, or teeth, have been regulated, I adjust retaining appliance, then place the patient under an anesthetic, and with a lance open the tissues at least one-half of the distance the length of the tooth, on the lingual side, this opening to be the full width of the root. If the tooth has been moved outward you will find the lance will readily pass into the position formerly occupied by the tooth.

If the tooth is moved inward after going through the soft tissue, it will be necessary to use a bur. Care should be taken not to touch the peridental membrane or drill too deep. It is also well to cut through the tissue on the labial side, especially if the tooth is moved outward by cutting into the septum on both sides.

After the opening is properly made it is thoroughly packed with antiseptic gauze or cotton and repacked several times until the cavity is completely healed from the bottom. The retaining appliance is then removed and can be done with perfect safety, providing the force of mastication is in the proper direction, and not towards that position the teeth formerly occupied. In drawing a tooth from its socket, I drill into the process near the end of the tooth on both sides, care being taken not to go over the end, to avoid destroying the nerve, or up to the peridental membrane. By doing this, new and firmer granulations are formed, and the tooth will remain in the desired position without any retention.

In order to accomplish the above results, however, there are several important points that must be observed. The occlusion of the teeth must be so arranged that the direction of force will be toward the desired position and not against it. The eruption of the third molar, or wisdom tooth, should not be allowed to force the bite forward as it sometimes does, and destroy all that has been accomplished. And that brings to mind that the teeth cannot be placed in an overcrowded condition and be expected to remain there unless held through life by mechanical retaining appliances.

Except in cases where deformities are very great, our patients

would rather we let their mouths alone than to harness them up with these unsightly appliances, to be worn indefinitely; consequently the success of the orthodontist depends upon his diagnosis and treatment, and if he be wedded to any one method or any one system, he is a failure. Our object in regulating should be to correct facial deformities and leave the patient with a good masticating occlusion, moving as few teeth as possible, that they may stand in the desired position within a reasonable time without mechanical retention.

When mechanical appliances are necessary, and they are necessary in almost every case for a short period of time to support the tooth or teeth firmly in position until the new tissues have formed about them, the writer advises only such appliances as are easily adjusted, changed Gold bands or any cemented appliance cannot fill these or removed. requirements, and are objectionable for reasons given in the forepart of this paper, namely, decay, spacing, etc.; consequently should not be used only when necessary. I have found the gold wire woven about the teeth fills the requirements in almost every case. It needs no cementing, will cause no decay, no spacing, no irritation (if adjusted properly), can be tightened at any time while in the mouth, and holds the teeth firmly and closely together. If desired a gold wire about 20-gauge can be adjusted about the lingual side of each tooth, that portion passing between teeth filed flat on the outer surface, leaving the rounded surface next to the tooth, these ends just passing the greatest diameter of the tooth. After all are adjusted, take impression, and after placing the wire bands into it, make model and solder the wires together on lingual side with only sufficient solder to catch them. Place the appliance in position in the mouth, and with long, thin beak pliers, catch the ends of the wires from the labial side, pressing them firmly to the tooth. If at any time it should become loosened, with the pliers tighten as above described.

Both of these methods were presented to our local society in Cincinnati some years ago by Dr. M. H. Fletcher, and we should all be greatly indebted to him for them, for when once used, and used properly, they will never be discarded. As the ideas were new to me at that time, they have been called, in my office, the Fletcher method of retention.—Dentist's Magazine.

BURNISHED JOINT FOR PORCELAIN CROWNS.

BY D. T. HILL, D. D. S., SYRACUSE, NEB.

So many suggestions have been made in the matter of securing a perfect joint in setting the porcelain crown, that it would seem that the ingenuity of man has been exhausted; most of the plans. however, have contemplated grinding the porcelain directly to the end of the root. The physical impossibility of making a perfect joint in the mouth led me to adopt the following plan, which seems to secure the desired result. In setting the detached Logan or David crown, prepare the root in the usual way: after the root has been reamed out, place the pin in position and try on the tooth to get the alignment; if necessary, bend the pin; remove the pin and cut a piece of fine gold plates 36 gauge, large enough to more than cover the end of the root. With the plate punch, a hole in the center of the plate; replace over the root and force a pin through the hole to position in the root; then burnish gold over the edge of the root until the gold shows a well-defined mark made by the root edge: trim the gold carefully to this mark, replace and burnish gold perfectly to the entire end of the root, dressing off the edge of the gold at any point it may extend slightly beyond the edge of the root. this is accomplished, with the pin and gold plate in position, fill the space with soft salted paster, allowing the plaster to extend over the teeth on each side of the space, and while the plaster is still soft direct the patient to close the teeth and keep them in this position. until the plaster has set, thus securing the bite. Remove the plaster (if it breaks save the pieces), which will bring the pin and gold plate away with it; run the model, which will show the tooth in each side of the space; place in the articulator and run the cast, showing the opposing teeth. We thus have the pin, gold plate, and teeth each side of the space, together with the occluding teeth, in plaster. The porcelain may then be ground to fit the gold plate and articulate very satisfactorily. When ground to position, cement the crown to place; after the cement has set remove the plaster and the operator has a crown ready to set with a burnished joint between the root and tooth, the gold being so thin that it is quite imperceptible, and a joint as perfect as can be made for any inlay.—Dental Brief.

METHOD OF ROOT RESTORATION FOR A CROWN.

BY W. A. ROBERTSON, D. D. S., CROOKSTON, MINN.

The subject of restoring roots which have become weakened by the averages of decay, is one which demands the careful consideration of all conservative practitioners, to whom the forceps are only used as a last resort. With the advent of modern antisepsis, the treatment of pathological conditions involving the tissues surrounding the apices of roots, has in the vast majority of cases become an easy matter, so that we will not treat of that in this connection. Taking for granted that the roots have been placed in a healthy condition the question presents itself how may we best restore them to support a crown with the greatest possible hope of permanent success.

For example, take the case of a lateral incisor the crown of which has been entirely destroyed by caries and we find the root penetrated to almost two-thirds its length, leaving a cone-shaped cavity after the decay is removed with only a very thin margin of tooth substance at the cervical margin. The treatment I have followed in such cases with uniform success is as follows:

After removing all cases of decay and trimming the margins as thoroughly as possible, syringe the cavity with warm water to remove any loose particles and moisten the walls. Take a small cone of modelling composition and softening the point force up into the cavity and allow to harden for a moment, then removing it, invest the impression of the root in plaster, allowing this to set. Having placed a little temporary stopping in the cavity, dismiss your patient. When the plaster has become thoroughly hard soften and remove the modelling compound and you have an exact impression of the cavity in the tooth. Fill this full of amalgam, making a small hole through it about where the pin ought to be before it sets. Allow this to set over night, then break away the plaster and you have an amalgam inlay that will exactly fit your root. At the next sitting dry out the cavity and roughen the walls with a wheel bur and with a sharp-edged file make some shallow grooves on your inlay. Mix some cement thin and coat the surface of the root thoroughly with it and force the inlay to place. To assist in doing so make a slight mark on the surface toward the front to make sure you have it in right. When the cement has set drill the hole for the post, which is an easy matter, as the reamer will follow the small hole already made.

I prefer the Davis crown for such cases, as the pin, not being so large, does not weaken the inlay, and the reamers furnished which correspond to the size of the pin used insure the strongest support for the crown.

The entire inlay with crown in position can be made out of the mouth by taking an impression and bite before removing the impression of the root, which is removed and replaced in position before running. When doing it this way it is necessary to leave the surface of the amalgam a little below the margin of the root, as the cement will occupy a little space so that the inlay will not sink to the full depth. You can set the pin by driving it to place with a small mallet while the amalgam is soft, and allowing it to set and then setting the crown in the mouth. If you should wish to set a gold crown on, sav, a second bicuspid, the root of which is in much the same condition as the one described above, follow the same method and build the amalgam down below the margin of the root and finishing it to conform to the circumference of the root before setting it in position, and after the cement has set make your crown to fit. There are many places where this principle can be used to advantage, but I have only suggested a couple, and others will doubtless suggest themselves. Hoping that this may be of interest and prove as satisfactory to others as it has to me, I gladly contribute my mite.—Review.

DENTAL EDUCATION IN THE PUBLIC SCHOOLS AND HOW IT SHOULD BE ENFORCED.*

BY T. M. ROSS, D. D. S., ST. LOUIS, MO.

The subject of dental education in our public schools, whether of the city or township, has been a subject of great interest to many of our fellow practitioners as well as myself. It has claimed my deep interest for various reasons, many of which I will endeavor to put forth as clearly and as concisely as is possible in this paper.

All of my educational training I have secured from and through the public schools of St. Louis, prior to the study of dentistry, and so as a pupil of the St. Louis public schools I am going to tell you what

^{*}Read at the Manufacturers' Clinical Exhibit.

I know to be facts and what I think may be accomplished. There are in St. Louis one hundred Eighth grade Schools, called primary or preparatory schools to the next grade, which is the high school, and these high schools are preparatory schools for college and university work. There are four high schools in St. Louis.

There are in these schools some 82,000 pupils, in round numbers. You may readily see that they would make a very good sized city. These figures in themselves give us a subject to think and ponder over. A city of 82,000 children—and if you ladies and gentlemen could go from room to room, from the first grade to the senior class of the high school and examine and note the condition of the teeth and oral cavities of these 82,000 children it would fire you with such a determination to agitate this subject before the authorities that, as the eyes and general health are examined and discussed in class at regular stated times, so would oral prophylaxis and general care of the teeth be taught. Imagine the results from such a course, and then think of the results if compulsory examination was in vogue with the course of instruction. I may be wrong in this statement, but I have investigated very thoroughly and I am prepared to say that I do not think that there are more than four or a possible five cities in these United States that even pretend to educate their public school pupils in the care of the teeth and oral cavity, to say nothing of having compulsory examination by competent practitioners. We are waking up, it is true, but see Russia, and Germany, see Great Britain and New South Wales, see France, note our little friend Holland. All have compulsory examination and education of the children for the cure and Now, Ladies and Gentlemen, ought we to preservation of the teeth. be ashamed or no?

Dr. Brown of Chicago, has said that "If mouths of children in our public schools could be systematically examined by competent persons and instruction given and enforced with regard to the intelligent use of brush and antiseptic solutions, the death rate of this country could be materially lessened and the percentage of illness much reduced, and a stronger and more vigorous race would result in consequence of these prophylactic measures."

The instructions and examinations along the line of care of the teeth and mouth MUST BE compulsory; else it would never be of any value. How many of you have operated on the mouths of these

very children in school and found them absolutely filthy, and how can you expect these people to care for their children's teeth and mouths? Hardly at all. Some one must care for the CHILDREN'S TEETH and who is better able to enforce such care than the municipality? We must come to it some time and why not now?

From statistical reports we learn that in Great Britain industrial schools 80% of the children have badly decayed teeth and diseased gums. In Strassburg on examination 15% of the teeth of children between 3 and 5 years of age were good. Think of it, only 15%!—and between the ages of 6 and 10 only 9% were good. Surely in these cases wisdom of children does not come with years. The older they get the less care they take of their teeth. Germany had a report not long ago of 92% of teeth bad. England had 75% of the teeth of the children bad. These high percentages of decayed teeth are reported to be decreasing very materially.

The air about us is laden with germ life of the most deadly character. Bacillus tuberculosis is all about us, according to our greatest investigators. And what is a better hatching medium than a foul mouth and decayed teeth covered with filth? Why, gentlemen, some of our fellow practitioners carry with them day after day mouths that their patients would be ashamed of. How can they hope to impress the public when they themselves breathe into their patients' faces breaths that one would only expect from a passing garbage cart. Maybe they were neglected in their youth and can't get the habit of cleanliness now. Isn't it reasonable to suppose that if the oral cavities of children and older people are kept clean that the amount of disease and incidentally number of deaths would be greatly reduced? The deduction seems reasonable to me.

I have given you a few statistics simply as examples. Now to systems.

The cities that have any dental education in their courses of study are few, St. Louis HAPPENS to be one of the few, and when that is said nearly all is said. It amounts to practically nothing at all. Dr. Stewart of the Board of Education said that as far as he was able to, he examined the teeth of the children that he saw, but he could not possibly examine them as they should be. He said to me: "Dr. Ross, I wish you would go some time to the Lincoln School and see a certain lad there and see his mouth." He said he didn't know what the

trouble was, but it was awful. Imagine this child permitted to mingle his foul breath with the remaining 39 or 40 pupils of his room.

Dr. Stewart is fearfully handicapped. The Board has laid a task to him that is impossible for one man. I investigated the educational side of the matter and found that in the study of physiology and general hygiene, very little or practically nothing is said or taught about the teeth, the minute details that are so necessary to such instruction. You ask do I think the Board of Education should care for this branch of study, and I say most frankly that I do not think so. Dr. Stewart is doing noble work and all that can be asked of anyone, but he needs help. I am of the opinion that the Board of Health should have control of this branch and govern it entirely and much more thoroughly. This is no reflection on the ability of the Board of Education, how-It should be the duty of the appointee of the Board of Health to map out plans of instruction for the public schools and see that the plans are carried out. Definite periods should be allotted him by the School Board in which to meet the classes for instruction. questions should be included in the examinations in physiology pertaining to care of teeth and general prophylaxis of oral cavity. These questions and answers should be required in writing when it is possible, the same as other subjects. Then at regular intervals the physician or dentist who has charge of these subjects should assemble his assistants and hold rigid examinations. And for the children of the poor the city should provide an infirmary for their treatment.

Look to New York, Cleveland, Cambridge, Chicago and see what they are doing for the children of the poor. Let us not be behind in the matter of such great importance. Let us not be satisfied with the mediocre.

This subject of cleanliness must never be before the pupil, then, and only then will it have its lasting influence. Let us not rest till the protection and guidance for the pupils of our public schools, which they deserve and desire so much is granted and enforced along the lines of cleanliness. Then part of our duty to humanity will have been accomplished and we may set our hearts to new duties that will surely follow the enlightenment of the children on this subject.

Be clean! Be pure! For with what purity you ARE clothed you shall be clothed.

I thank you for your kind and earnest attention.—Dental Era.

THE IMPORTANCE OF MASTICATION AS RELATED TO HEALTH.*

BY W. L. WHIPPLE, D. D. S., ST. LOUIS, MO.

I am sure there is not a dentist in this room who is not well aware of the importance of mastication, but I doubt if there are many here who correctly practice it individually or properly impress it upon their patients.

To Mr. Horace Fletcher is largely due the credit of the present deep interest being given to this most important question and from whose writings I have freely quoted in this paper. Our dental and medical journals are earnestly discussing this question and endeavoring to impress upon all medical and dental practitioners their altruistic duty to their patients, and the public in general, in acquainting them with the necessity of properly performing this—the first process of digestion, assimilation and nutrition—to the end that we as a nation may halt in our strenuous and barbarous method of partaking of the plenty that God has supplied us with, and learn to eat so that Nature may utilize that food to her and our service.

The Woman's Christian Temperance Union has long carried on a glorious fight against intemperance in the use of liquors, but I believe that more injury is done to the nation by intemperance in the amount and manner of eating than in the consumption of liquors.

Ask yourself the following ten pertinent questions as taken from Mr. Fletcher's writings:

- 1.—How much do I know about my own nutrition?
- 2.—Do I know the particular need and purpose of my last meal, and what it is likely to accomplish?
- 3.—Considering my body as an engine, would I accept myself as a competent engineer on my own examination and confession?
- 4.—Were I an iron and steel automobile, instead of a flesh and blood automobile—which I really am—could I get a license for myself as a chauffeur, to run myself with safety, based upon my knowledge of my own mechanism and the theory and development of my power?
 - 5.-Were I an owner of valuable live stock, would I employ a

^{*}Read before the Manufacturers' Trades' Exhibit.

farm hand or stable man, even at so low a wage as \$15.00 per month, who knew as little about the proper feeding of my animals as I know about the proper feeding of myself and my children?

- 6.—Should I employ such an ignorant attendant for my live stock and catch him worrying them during their feeding, and hurrying them away from their fodder to hitch them up for work, would I not have the man arrested for cruelty to animals? And yet this is what is habitually done to children.
- 7.—Do I appreciate how important it is to learn sufficient of the requirements of economic and healthy nutrition to enable me to escape the depressing and debilitating effects of a faulty nutrition?
- 8.—How can I religiously "ask a blessing" upon food and then immediately sin by treating it in a manner abhorrent to the natural requirements?
- 9.—If "Cleanliness is next to Godliness" is it respectable for me to slight my proper feeding in a manner that I know may produce indigestion, and may produce fatal disease?
- 10.—With all eternity ahead of me, cannot I afford at least sufficient of my time for the careful feeding of my body in a manner known to favor physical health, mental keenness, firmness of character, enjoyable temperance—in fact, general respectability and efficiency?

Remembering that the only actual mechanical responsibility we have in our nutrition is MASTICATION, which includes INSALIVATION, and knowing that this is the first and probably the most important process of digestion, will not we give careful attention to the mouth treatment of not only hard foods, BUT EQUALLY AS MUCH TIME AND ATTENTION TO THE SOFT AND LIQUID FOODS, thereby insuring the best health and economic results? After a little practice, when the habit of care and attention has been formed, this will not be found to be a tedious operation. On the contrary a new appreciation and enjoyment of taste will be acquired, the delight of which must be experienced to be understood.

Mr. Fletcher states that "Nothing that has taste should ever be swallowed." That is, everything should be so thoroughly masticated and insalivated that all taste is absorbed in the mouth; even liquids should be so treated, and all food masticated until it becomes a liquid—one hundred chews to each bite being a good rule. Therefore water, which has no taste, is the only fluid which we should drink without

insalivation. We all know that the only pleasure derived from taste is in the mouth and that taste returning from the stomach is indicative of indigestion and faulty mastication, besides being quite objectionable. Suppose your time for eating is limited; you haven't time to eat slowly the usual meal. Then eat that much less. The amount of food which you eat if thoroughly masticated will give you more nourishment and will sustain you better than twice the amount improperly thrown into the stomach.

Do you know why griddle cakes hurt you? Because the syrup, which is cane sugar (and as such is indigestible) is allowed to pass through the mouth and down into the stomach without being properly mixed with the saliva. As soon as it enters the stomach it becomes acid and interferes with everything it meets. Had the cakes and syrup been properly masticated and insalivated, the cane sugar would have become grape sugar, and in this form it is easily digested.

Food is intended to be eaten that nourishment may be gained from it, and when we gain only a part of the nourishment, we prostitute our stomachs and take tremendous risks of germ disease in our bodies. We live not upon what we eat, but upon what we digest and indigestion and dyspepsia work their evils slowly but surely.

Mastication, by breaking the food up into small particles, enables it to be brought into intimate contact with the digestive juices; promotes the flow of saliva and the insalivation of the food; assists swallowing; increases the amount of alkaline saliva passing into the stomach, influencing all the digestive processes taking place therein. tication acts reflexly upon the stomach, promoting the flow of gastric juices, and thus preparing the stomach for the entrance of food into it. It stimulates the heart and so promotes general circulation. develops the teeth, jaws and masticating muscles. Mastication is the first process towards digestion, assimilation, nutrition and health. Soft foods do not invite mastication and they find their way into the stomach all too readily. Hence the instinct to masticate has little opportunity for exercise, and not being properly exercised, tends to die out. Small wonder that a child, nourished on soft food acquires the habit of bolting it, and learns to reject hard, coarse foods in favor of the softer kinds.

One of the greatest enjoyments of living is the pleasures of the table; then why do 95% of the people adopt a method of eating which

shortens the pleasure? In fact eat as though it were a necessary but objectionable function which they are anxious to have over with. This method produces fermentation and decomposition in the stomach, which in turn is locally irritant and poisonous to the entire system, bringing on liver troubles, gastro-intestinal disorders, vertigo, and I verily believe fully 75% of our general ills.

With children mastication is most important. Lack of it results in the muscles and maxillary bones being undeveloped, the dental arch being contracted in size and the teeth crowded and irregular, which invites dental decay. The child becomes a victim of chronic indigestion and defective nutrition, the evil effects of which frequently extend throughout the entire system.

A dietary reform (changing from soft to hard foods), followed faithfully through life, I am convinced, will change the present adverse conditions, and a rapid improvement be effected in the physical development and general health of the community. Such a result is well worth striving for. Rightly considered, their attainment calls for no sacrifice of the rational enjoyments of the table; on the contrary, with the improvement of the general health which attends a simple, well-masticated and well-assimilated dietary, comes an increased capacity for the enjoyment of food as to not only fully compensate for abandoned indulgences, but to create against them distaste and repulsion.

Our resources for treating diseases have increased with the needs, but unless the cause of disease be removed, we can never hope for a permanent cure. If the natural processes of digestion and nutrition were perfectly performed, we should undoubtedly be free from general disease and likewise from disease of the teeth. This ideal way of living under the existing conditions of civilization may seem impossible, but the nearer we approach the ideal, the better we shall be in all respects.

Nature has provided the adult with 32 teeth, 12 of which are intended to be used for cutting and tearing the food in order to have it in such proportions as to enter the mouth; the other 20 are for mashing and grinding purposes. Experience teaches us that those who have this full complement of teeth in a healthy condition, as a rule do not appreciate what use Nature intended them for. If those who are properly equipped do not masticate, what can

we say of those who have lost one or more teeth, thereby creating wide spaces into which the food crowds and prohibits mastication—just as a millstone with large ditches in it is practically useless—so is the function of the teeth to a greater or less degree destroyed. Again those who find that attempted mastication is painful, due to diseased conditions of the teeth, simply avoid that function and bolt their food. This in time leads to the many diseases heretofore mentioned. One of St. Louis' most prominent physicians stated to the writer recently that he believed the practice of over-eating and under-masticating was no doubt causing an increase of Bright's disease.

It is reasonable to suppose that if we appreciate the benefits derived from mastication, we must also realize the value of the teeth which must perform that function for us. Teeth, like any other part of our anatomy, must be exercised and cared for if they would be preserved. Teeth that are not used and not cleaned soon decay and become loosened. Nature assumes that we have no use for them since we do not use them. It is also true that lack of hygiene of the mouth may lead to serious effects upon our health. This is a matter of so great importance that physicians are giving more careful attention to the hygiene of their patients' mouths, more especially in the sick room. Aurists and oculists now realize that many ear and eye diseases are but reflexes from diseased conditions of the teeth. Surgeons also are now requiring that, before they perform surgical operations, especially for appendicitis, that the hygiene of the mouth shall be carefully attended to, believing as they do, that some of the microbes produced by a filthy condition of the mouth may find their way to the wound and produce inflammation.

If we know and believe in the advantages to the individual derived from the practice of mastication and the proper exercise and care of the teeth, it is obviously just as much our duty to preach it for the comfort and happiness of our fellow man in this life as it is for the Doctor of Divinity to preach of the future life.

The credit of emphasizing the great importance of thorough mastication being due to Mr. Fletcher, the practice is now commonly termed "Fletcherizing." Let us not only acquire the practice but also do honor to Mr. Fletcher.—Era.

SENSITIVE CAVITIES

BY GEORGE GOW.

(Dominion Dental Journal, Canada.)

In sensitive superficial cavities due to erosion or abrasion, a warm solution of trichloracetic acid in full strength applied two or three times, the cavity being dried between applications, will often enable one to penetrate to sound, non-sensitive dentine, when the cavity may be prepared as desired.

In a paper, elsewhere, I drew attention to the frequent co-existence of the two forms of bacteria I have been specially mentioning, - namely, the bacillus fusiformis and the spirilla, and I have also noted that some observers in Paris had observed these same two forms in pseudo-diphtheritic affections in the throat; in their cases the pathological changes that occurred were ulceration, followed by suppuration in the tonsils, changes not dissimilar to those seen in cases of pyorrhea. With us the difficulties surrounding the cultivation of these organisms have prevented any further knowledge being acquired as to whether we can regard them as being in any way the cause of pyorrhea; but in the throat the problem was very much simpler, for usually, these two forms were the only two present. At the present time we cannot go further than to simply emphasize the fact that there are present pretty constantly in pyorrheal pus two organisms that seem to have the power in other parts of the body of setting up changes rather similar to those that are seen around the teeth in pyorrhea.

In the pus there are present many other kinds of bacteria, but as they are neither interesting for their form, or for the information they afford, I need not refer to them now.

2. Cultivating Experiments:

This portion being particularly technical, I don't propose to enter into any detail as to the methods of cultivation or the many varieties of media employed. It is unfortunate that of all the varities of organisms that we are able to recognize in the pus, by far the great majority refuse to grow artificially, no matter what kind of media be employed. I have myself tried all the well-known media and many other special ones, but the results obtained are very meagre. I was

able on one occasion to get a pure growth of the spirals mentioned before, and it is interesting to note that while the culture is young the organisms are in the form chiefly of commas or vibrios, but as they grow older, they resume the longer and more tortuous shape.

Another well-known organism that I was able to cultivate also on one occasion only was the large bacillus generally known as the Bac. Maximus buccallis; this consists of very large rods with square ends, often forming chains, and just as often assuming the form of long jointless threads, the latter being the variety more commonly seen in the mouth. I mention these two forms first, because they are so admittedly difficult to grow, that Miller places them in his group of mouth bacteria that cannot be grown. Goadby first succeeded in cultivating them and using similar methods, I also was able to get just one sample of each.

Another bacillus that grew once was in the form of a short bacilli with rounded ends, this also tended to grow out into long chains.

All these bacilli were only obtained after innumerable trials. and when they did grow it took weeks of care before they were sufficiently accustomed to artificial conditions of life for them to be further experimented with. When we turn to the cocci, however, the results are very different, for whatever media you use these organisms grow in the utmost profusion, so much so that they are a positive hindrance to the search for other types. You will recall that most forms of suppuration in the body, such as abscesses, are due to the activity of cocci; now those cocci have been very thoroughly studied and their appearance on all sorts of media is well known. and three main varieties are described, namely, the staphylococcus aureus, the staphylococcus albus, and the streptococcus longus. Now it has been fully proved by every worker in this subject, that any of this group are present in only about 10 per cent of cases, and although in the other 90 per cent of cases, very similar organisms were found. Yet because they did not exactly correspond, as they ought to the usual type, therefore it was at once assumed that they were incapable of causing any suppuration. Miller and all the early investigators took this view and quite concluded that the influence of pus cocci was very slight as regards pyorrhea.

This view will, in the light of later work, not hold good, for both

Goadby and myself found that many of the staphylococci, which are present in great abundance in every case, although they are not exactly like the usual type of pus-producing cocci in their manner of growth, yet are as fully capable of causing abscesses in animals as the ordinary type, and therefore their influence cannot be so easily dismissed as has been thought. This point will be referred to further under the next heading. It is sufficient here to say that some of the pus-forming cocci, either of one variety or the other, can be cultivated from every case.

The peculiar star-shaped colonies that many of the atypical group of cocci assume on culture media are rather interesting as showing what quaint shapes bacterial growths may sometimes form, and this is one amongst many other ways of recognizing a particular organism.

COCAIN POISONING.

In regard to cocain poisoning, I would state that in the cases in which I have used pericemental and intra-alveolar injection for pulp anesthesia I have had no general toxic effects. I have, however, during the past year, had two cases of marked toxemia when using it for other purposes. The first was following an alveolectomy for necrosis and the removal of several roots, where about two-thirds of a grain was injected. I had previously given twelve minims of volasem as an antidote. The chief symptoms noted were pallor, cyanosis, cold, clammy perspiration, extreme nausea, dyspnoea; rapid pulse and heaviness of the extremities. The patient soon responded to stimulation.— Dr. H. S. Vaughn, Brief.

A VARNISH FOR IMPRESSIONS.

Sodium silicate and ammonium hydroxide, equal parts, forms a varnish that is indispensable for plaster molds, impressions, etc., and is inexpensive. For impressions—apply in the same manner as you would shellac. A coloring matter, as carmine, may be added so that the division line may be readily seen. Separate in the same manner as with shellac. When used on models in flash before packing the rubber the plaster readily separates from the plate after vulcanizing, leaving it clean and smooth.—T. A. Leach, Review.



MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held at the Dental Department of the State University in Minneapolis, Minn., on November 10, 11, 12, 1908. All applications must be in the hands of the secretary by November 1. For further information address

DR. GEO. S. Todd, Sec'y,

Lake City, Minn.

IOWA STATE DENTAL BOARD.

The Iowa State Board of Dental Examiners will hold its next examination at Iowa City, December 1, beginning at 9 a.m.

Practical examination in Operative and Prosthetic Dentistry. All fees must be in the hands of the secretary by November 15.

Le Mars, Iowa.

E. D. Brower, Sec'y.

NORTHERN ILLINOIS DENTAL SOCIETY.

The twenty-first annual meeting of the Northern Illinois Dental Society will be held at Freeport, October 21 and 22, 1908.

Mark the date in your appointment book and be sure and come for both days. The supervisor of clinics and program committee promise one of the best meetings of the society.

C. L. SMITH, Secretary, St. Charles, Ill.

OHIO STATE DENTAL BOARD.

The State Dental Board of Ohio will meet in regular session in Columbus, on October 20-23, 1908, for the examination of applicants for license to practice dentistry in this state.

Only graduates of reputable dental colleges are eligible to appear for examination.

All applications must be in the hands of the secretary at least ten days before the date of the examination, together with the fee of \$25.00.

For further information and blank applications address the secretary, F. R. Chapman, 305 Schultz Building, Columbus, Ohio.

SOUTHWESTERN DENTAL ASSOCIATION.

The fourth annual meeting of the Southwestern Dental Association will meet Saturday, October 10, 1908, at San Antonio, Texas.

There will be morning, afternoon and night sessions; therefore it would be well to reach San Antonio Friday and attend the fair, as you can secure railroad rates.

Remember that this is an annual meeting and election of officers.

If you are a member it is very important that you attend to add to interest of meeting. If you are not a member we extend to you a cordial invitation to come, and will endeavor to make you feel at home, as San Antonio dentists excel in hospitality.

Sincerely,

F. W. SMITH, Secretary.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois will be held in Chicago, at the Dental Department, University of Illinois, corner Honore and Harrison streets, beginning Monday, November 9, 1908, at 9 a. m.

Applicants must be in possession of the following requirements in order to be eligible to take the examination: (1) Any person who has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; or (2) is a graduate of and has a diploma from the faculty of a reputable dental college, school, or dental department of a reputable university, or (3) is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary, on application to the secretary. All applications must be filed with the secretary five days prior to the date of examination. The examination fee is twenty (\$20) dollars, with the additional fee of five (\$5) dollars for a license.

Address all communications to J. G. Reid, Secretary, 1204 Trude Building, Chicago, Ill.

FOX RIVER VALLEY DENTAL SOCIETY.

At the annual meeting of the Fox River Valley Dental society, held in Appleton, Wis., September 9, these officers were elected: President, Dr. J. L. Blish, Fond du Lac; vice-president, Dr. H. K. Pratt, Appleton; secretary, Dr. G. A. Stratton, Oshkosh; treasurer, Dr. G. E. Johnston, Appleton. The next meeting will be held in Fond du Lac. It was decided to affiliate with the Wisconsin Dental Society.

NORTHERN INDIANA DENTAL SOCIETY.

The annual convention of the Northern Indiana Dental Society was in session at Fort Wayne, September 8-9. Goshen was selected as the place of meeting next year. Officers were elected as follows: President; Dr. W. R. Meeker, Peru; vice-president, Dr. J. A. Dinwiddie, Lowell; secretary, Dr. W. I. Vallette, Goshen; treasurer, Dr. J. F. Peterson, Milford; supervisor of clinics, Dr. J. A. Stage, Goshen.

DENTAL MANUFACTURERS' EXHIBIT.

Arrangements have been completed for the next Dental Manufacturers' Exhibit to be held at the Hotel Sinton, Cincinnati, Ohio, on October 27, 28, 29 and 30th.

Cincinnati was chosen for this exhibit for the purpose of giving the dentists in the central states, who could not attend the exhibiton held in March, in New York, an opportunity to attend this one.

The product of the leading Dental Manufacturers of the United States, is fully demonstrated at these exhibitions, among them being the latest inventions in all lines of dentistry and they are not only interesting but educational.

No expense is spared to make these exhibitions a success and the location of the October exhibition is exceptionally good, being in the best hotel in the city.

Special arrangements have been made for the comfort and entertainment of the lady visitors, and the four days spent in the city can be filled in a most beneficial and interesting manner.

There is no fee of admission, buttons being furnished on application at the registration desk, admitting the wearer to the exhibition hall and clinics at all times.

All dentists and their families are invited to attend and special hotel arrangements are being made for the out-of-town guests.



METHOD OF SOLDERING GOLD INLAYS.

In making inlays, whether solid or hollow, pack the matrix, after investing with crystal gold, restoring contours to suit the case.—
Dr. F. C. Runge, Summary.

OBTUNDING SENSITIVE DENTIN.

I am using refrigeration with ethyl-chlorid for the purpose of obtunding sensitive dentin. In applying it I always put some in the cavity on a piece of cotton, which takes the shock away so that there is not so much pain in the after treatment.—Dr. Lemley, Pacific Dental Gazette.

STERILIZING THE FORCEPS.

The forceps, including the handles, are boiled in a solution of common washing soda, about a quart of water to a piece of soda the size of a walnut; there is no rust. A mixture of vaselin and carbolic acid rubbed in the joins while hot will keep them as good as new. F. E. Garner, British Dental Journal.

ARRANGING A LOWER SET OF TEETH.

In arranging a lower set, commence with the second bicuspids, as four-fifths of the lower anterior teeth are too wide for the uppers, and it is essential that the bicuspids properly occlude. Then use teeth just wide enough to fill the space between the bicuspids.—

L. P. Haskell, Dentists' Magazine.

DANGER OF ZINC IN VULCANIZER.

If any member of the profession is following the suggestion of putting zinc in the vulcanizer for the purpose of keeping the flask clean, he will find himself in trouble in a short time. Zinc in a vulcanizer will, in a short time, decompose hot water, evolving hydrogen; and when there is enough of it to replace the steam, the regulator will be operated by hydrogen pressure, and the heat will go down, causing the plate to come out soft at the end of the vulcanizing time.—R. E. Luther, Dental Brief.

HEATED BORAX.

When ordinary borax, containing H₂ O, is subjected to heat, considerable intumescence occurs, with a corresponding increase in volume until it finally fuses and becomes borax glass. In soldering, this intumescence displaces the pieces of solder or produces a large pit that mars the surface of the finished piece. If ordinary borax be used the amount should be limited; it should carefully be rubbed up with water on a ground-glass slab, and the pieces of solder should be of small size. When larger pieces are used, they should be so applied that one edge is first fused down upon the work and the whole piece of solder flowed by the heat toward the center of the work.—

A. R. Cook, Stom.

POST-EXTRACTION TREATMENT.

R—Orthoform	
Europhen	
Liquidi petrolatiq. s. to make a paste	. М.
Sig.—As directed.	

You will get much benefit from this, especially country dentists, who have to do a great deal of extracting, in allaying the pain after the extraction; if you have separated the process, or if the process is attached to the cementum of the root; or if you have had to go down and expose the process more or less; in any of those conditions from which you have severe pain you can stop that pain almost like magic by its use. Now, it is claimed by some that orthoform is a disinfectant. It is not a good disinfectant, but is an excellent local anesthetic. You can prolong the anesthetic effect if you use europhen. Europhen is a substitute for iodoform. It is an insoluble product, which, when it comes in contact with water, gradually gives off iodin. Combining these two and adding to that liquid vaselin makes an oily paste. After drying the exposed part apply the oleaginous paste, and you can control the pain. You do not need to be afraid; if the patient lives in the country and can not come in handily, and you think the pain will not stop by the time the anesthetic effect has passed away, you can give some of the paste and let it be applied personally. It must be applied to an abraded surface.—J. P. Buckley.

TO REDUCE PAIN IN THE REMOVAL OF CALCULI.

For the purpose of reducing the pain incident to scaling I recommend packing the pocket with a rope of cotton saturated in a one per cent cocain-adrenalin solution, allowing it to remain five minutes. Elgin MaWhinney, AMERICAN DENTAL JOURNAL.

ASCHERS' ENAMEL CEMENTS.

This clinic demonstrated Aschers' artificial enamel, also the clinician's set of instruments for working the same and how to make them. Cavities should be generally retentive in form and the margins square, as a rule. To secure good results, it is very necessary to have a proper mix, which should be applied to walls and margins while the mass is thoroughly adhesive. A gelatine matrix cut from a medicine capsule is used when filling most compound proximal cavities, reinforced with tightly packed cotton in the gingival space, and with modelling compound if a buccal or lingual wall is also to be restored.— Dr. C. M. Baldwin, Review.

THYMOPHENE.

Equal parts by weight of phenol and thymol crystals rubbed together in a mortar or combined by gentle heat in a test-tube, result in a fluid of oily consistency, similar in characteristic to camphophenique. It is not escharotic and will not coagulate the cuticle when applied topically. It has high germicidal efficiency. It makes an ideal dressing for root canals, taking the place of campho-phenique and the essential oils, because of its diffusibility, non-irritant, but sedative reaction. A large clinical use warrants a strong recommendation to the profession.—Dr. E. C. Kirk, Cosmos.

SENSITIVE ROOT CANALS.

Not infrequently root canals are sensitive, even though the pulp be all dead and removed. This sensation comes from prolongation of the nerves from the pericemental membrane to the pulp cavity. Many such sensitive root canals are sometimes found in the same patient. I have often mistaken the condition for remaining vitality of the pulp and applied more arsenic, only to find the sensitiveness remaining, or complete destruction of the pericemental membrane. I have tried sulphuric acid, nitric acid, zinc chlorid with doubtful results, but have found success with one application of phenol after failure with other agents.—Dr. A. E. Webster, Dental Magazine.



Smith-Smith.—Dr. J. F. Smith of Zanesville, Ohio, and Mrs. Ella Smith were married August 27.

Dyche-Fish.—Dr. R. W. Dyche, of Mount Vernon, Ky., and Miss Margaret Fish, were married recently.

O'Kane-Altmyer.—Dr. John J. O'Kane and Miss Altmyer, both of Wheeling, W. Va., were married at North Wheeling, August 26.

Singleton-Potter.—Dr. S. G. Singleton, a dentist in Bowling Green, Ky., and Miss Tempie Dee Potter were married September 15.

Fire.—Dr. G. F. Berry, a dentist in Murray, Ky., suffered the loss of office building and contents by a fire, which burned an entire block.

Norgren-Benson.—Dr. R. G. Norgren, of Rockford, Ill., and Miss Jennie Benson, of Swedesburg, Iowa, were married at the latter place, September 9.

Dentist Loses by Forest Fires.—Dr. Joseph Shellman, who was located in Chisholm, Minn., suffered the loss of his office in the great forest fire which swept over that part of the state recently.

Dentist a Bankrupt.—Dr. George L. Parmlee, a dentist in Hartford, Conn., has filed a petition in bankruptcy with liabilities of \$8,413.60 and assets of \$9,350, according to a Hartford paper.

New Building Nearing Completion.—The new building for the Dental Department of the University of Michigan will be ready for occupancy October 1. The building is 80x167, and cost \$125,000.

Fifty Thousand Dollar Damage Suit.—Two dentists in Chattanooga, Tenn., were made defendants in a suit for damages growing out of the death of a woman patient in a dental chair some time since.

Dentist a Swindler?—A Chicago dentist has been arrested in Los Angeles on a charge of complicity in a mining stock swindle. His bonds were fixed at \$5,000, and he will be brought to Chicago for trial.

Dies as Result of Tooth Extraction.—William C. Luther of the William C. Luther Fountain Pen Company, in Newark, N. J., is dead as a result of cancer, caused, it is said, by extraction of a tooth fifteen years ago.

Address Wanted.—Information as to address of Dr. James S. Adams, formerly a dentist in Pottsville, Pa., is requested. It is a matter of importance and information will be thankfully received.—Pottsville (Pa.) Republican.

No Pay, Removes Bridge.—A prisoner in the county jail in Lincoln, Neb., who had given a bogus check in payment for dental work, was made to disgorge, the dentist who had been imposed upon removing three gold teeth from his mouth.

Yokahama Dentist Visits America.—Dr. A. G. Smith, an American dentist who has been located at Yokahama, Japan, for twenty years, has been visiting his boyhood home at Ashtabula, Ohio, has returned to his field of work in the Orient. This was his first visit since engaging in practice in Japan.

Held for a Spy.—Dr. Carl Kabell, a Chicago dentist, was arrested recently in the northern part of Ireland, on the charge of being a German spy. Dr. Kabell is of German extraction, and looks like a German, and it was only by producing his passport and letter of credit that he was enabled to convince the court of his innocence of the charge.

Robberies.—Drs. W. D. McMasters, Belvidere, Ill., loss \$40.—P. H. Williams, Ashland, Ky., loss \$50.—F. W. Gibson, Sacramento, Cal., loss \$50.—M. F. Binkley, H. B. Brown, W. R. Nobbs and A. C. Burnett, all of Hamilton. Can., aggregate loss between \$600 and \$800.—Wm. Mitchell, Parkersberg, W. Va., loss \$12.—Roy J. Holcombe, Rochester, N. Y., loss \$75.—P. K. Hill, Rochester, N. Y., loss \$150.

Gold Bridge for Lion.—Dr. A. S. McDougall, a Coney Island dentist, inserted a bridge in the mouth of a South African lion in the Bostock collection. He had previously extracted a decayed tooth from the jaw of the lion, who thereafter refused to masticate his food and as a consequence was losing flesh and health, and a bridge was decided upon. Twenty-two pennyweight of gold was required, the bridge being made solid.

Robbers at Akron, Ohio.—In an interesting letter received from Dr. W. B. Sibley of Akron, Ohio, the doctor reports the loss by robbery September 7th of several hundred dollars' worth of instruments and materials, including Twentieth Century, White's and Justi's teeth, both rubber and facings, several bridges, including one large all gold bridge, gold scrap solder and platinum, new handpiece, etc., and advises every dentist to have a safe in his office.

German Dental Decision—According to Consul General Richard Guenther, the district court at Frankfort recently rendered the following interesting decision in a suit between American dentists practicing in that German city.

A firm composed of two leading American dentists here about eight years ago had taken an assistant, contracting with him that in 1908 he would be admitted to the firm as a member upon certain stipulated conditions, among which was the payment of a considerable sum of money. Should he fail to fulfill the contract the assistant was not to be allowed to practice dentistry for the next two years within a radius of 100 English miles from Frankfort unless he paid to the firm 30,000 marks (about \$7,000).

The assistant, after unsuccessful negotiations with the firm to permit him to practice on payment to it of a lesser sum, brought suit in the district court for the abrogation of the contract, claiming that such stipulations for preventing competition were against good morals and public utility. He rested his claim upon a decision rendered in a similar suit between authorized dentists by the supreme court of the empire, the highest legal tribunal in Germany, which had so declared.

The district court adopted this view and decided in favor of the plaintiff, holding that it is against the public interests when a dentist, in his feeling of responsibility, incumbent upon the exercise of his profession, is handicapped by stipulations which treat the professional activity from the point of view that it is solely a money making matter. Stipulations of this sort must therefore be considered as being injurious to the public good, and for this reason they should not be sustained.

This decision will give satisfaction to the public at large, as well as to aspiring American dentists. Germany and other European countries offer excellent chances of success to dental graduates. American dentists in good practice in the leading European cities have a larger professional income than their colleagues who practice in the United States.—Consular Report.

NECROLOGICAL.

Dr. William H. Monroe, who was the first practicing dentist in Chester, Pa., died in New York City recently.

Dr.Abner C. Crysler, a dentist at Niagara Falls, Ont., died at Preston Springs, August 30. He was 76 years old, and had practiced at Niagara for over fifty years.

Dr. Moses R. Thompson, who had practiced dentistry for nearly 50 years, died August 23 in Lewiston, Pa. He was 81 years old and was the author of many church hymns.

- Dr. J. O. Wells, a dentist in St. Paul, Minn., died August 27 of acute pneumonia. He was 37 years old, and was on the faculty of the University of Minnesota, Dental Department, and a member of its alumni.
- Dr. O. T. Eddy, a dentist in Decatur, Ill., died September 5th from heart trouble. Dr. Eddy had practiced his profession in Decatur for fourteen years. He was 37 years old and was a graduate of the Chicago College of Dental Surgery.



Fig. 1.

891,651. Dental Tool.—James H. Abbott, Philadelphia, Pa. Filed May 22, 1906. Seriel No. 318,192. 1. In a dental tool, a mandrel, a flange connected therewith bristles, a split sleeve on said mandrel and a collar surrounding said sleeve and having a flange between which and the first mentioned flange the bristle are held, said collar causing said split sleeve to tightly engage the said mandrel.

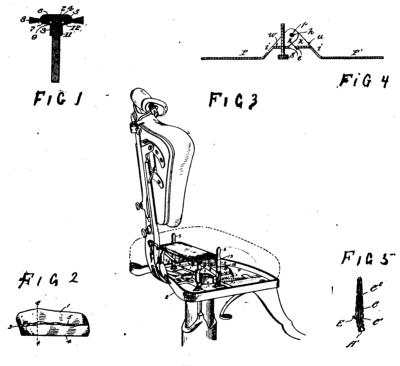


Fig. 2.

891,689. Mold for Making Dental Plates.—Jacob W. Greene, Chillicothe, Mo. Filed January 21, 1908. Serial No. 411,988. 1. A mold for forming dental plates comprising an approximate model made of rigid, non-changeable material and having an abrupt ledge at its edge, and a thin layer of plastic material secured to the inner surface and ledge of said model and serving to correct the shape of said approximate model so that the mold will fit the inner surface and edge of an impression.

Fig. 3.

891,762. Dental Chair.—Frank E. Case, Canton, Ohio. Original application filed June 25, 1906. Serial No. 323,213. Divided and this application filed April 17, 1907. Serial No. 368,643. In a chair, a frame and a detachable ordinary seat thereon, a secondary seat normally nesting on the frame underneath the ordinary seat, and mechanism connecting the secondary seat with the frame whereby it can be raised and sustained on the frame, comprising two pairs of parallel connecting bars pivoted to the frame and to the ends of the secondary seat, one bar of each pair having a pin near one end thereof, and a brace link pivoted to the other end of the other bar of each pair, and having a notch in its free end adapted to engage the corresponding pin when the secondary seat is raised.

Fig. 4.

892,040. Dental Articulator.—John C. Fisher, New York, N. Y. Filed March 30, 1908. Serial No. 424,069. A dental articulator consisting of two jaw plates, the main portions of which are flat with oppositely inclined convergent inner portions formed with interlocking knuckles which project beyond said convergent portions and are formed with coinciding hinge pin holes occupying an axial plane between the opposed inner edges of the plates when the flat portions of the latter are extended in a plane common to both, together with the hinge pin, for the purpose described.

Fig. 5.

891,600. Means for Attaching Crowns to Roots of Teeth.—Charles A. Davis, Pasadena, Cal. Filed October 23, 1907. Serial No. 398,829. 1. An angular, tubular pin for connecting a crown to the root of a tooth, affording means for access to the canal cavity of the root, as set forth.

Removals.—Dr. J. W. Fry from Clinton, Ill., to Winterset, Iowa.—A. C. Davis fro Girard, Ill., to Las Tanos, New Mexico.—E. L. Williams, from Monroe, N. C., to Denton.—W. E. Morris from Chicago to Benton Harbor, Mich.—F. H. Roberts from Burlington, Wis., to Prairie du Sac.—R. J. Gurst from Dayton, Ohio, to Quetta, India.—R. S. Conner from Knoxville, Iowa, to Des Moines.—C. L. Meade from Liscomb, Iowa, to Mason City.—F. A. Poyner from Winnipeg, Manitoba, to Bellvidere, Ill.—P. D. Hicks, from Starke, Fla., to Hawkinsville, Ga.—H. H. Ihrig, from Milwaukee, Wis., to Sank Rapids, Minn.

State Board Affairs.—A dentist in Portsmouth, Ohio, plead guilty to illegal practice, and was fined recently.—A young lady in Evanston, Ill., where she is employed as assistant to a dentist, was arrested for practicing dentistry, she having cleaned teeth for two patients during the absence of the dentist. She was discharged on a ruling that the law does not include the cleaning of teeth in the practice of dentistry.—A dentist in San Francisco was convicted of illegal practice, August 30, on testimony of state board detectives.—Two dentists in Ogden, Utah, were complained against for the eighth time for practicing without a license.

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INDEX TO ADVERTISEMENTS.

Acolite	7-22
Acestoria	4
Adams Mouth Prop	17
Ad-Lac	. 22
Author Orbin A.C.	. 22
American Capinet Co	. 8
American Cabinet Co	12
Anchesia Astificial Promoni 09 0	ວ ຄວ
"Rerosine"	8 14
Bristol Mayers Co. Brooklyn N. V.	~, ~ ~
"Bargains" 1 1 Bristol Meyers Co., Brooklyn, N. Y. Cast Aluminum Dental Plates Chicago College of Dental Surgery, Chicago, Ill.	92
Cast Aluminum Dentai Flates	. zz
Chicago College of Dental Surgery, Chicago, III	:17
Chicago Dental Laboratory Co	_ 18
Clark, A. C. & CoLast Cover	Paga
Co-Arda Co	8 0
College of Dontistry University of Illinois	a 37
Courte of Delities of Management of Manageme	a, Tr
Crocker, Samuel A. & Co	84
Crown Pin Puller	7
Chicago College of Dental Surgery, Unicago, III Chicago Dental Laboratory Co Clark, A. C. & Co Clark, A. C. & Co Clark, A. C. & Co College of Dentistry, University of Illinois Crocker, Samuel A. & Co Crown Pin Puller Davis & Davis, Patents Des Thomas I & Co	12
Davis & Davis, Fatents Dee, Thomas J. & Co. De Trey, E. & Sons. Dental Ad-writer, H. Elfers Dentals Supply Co., New York	86
De Trey H & Sone	54
Dontol Admilian U Tifaro	7.5
Dental Adwiller, R. Edels	_ 40
Dentists supply Co., New York	5, 58
Edwards (.O., 1, w.,,,,,,,,	31
Electro Dental Mfg. Co	88
Ruraka Suction Co	40
Excelen Broaches	- ĕ
Excelso Broaches Goldsmith Bros., Chicago, Ill.	8 11
Goldsmith Bros., Chicago, Ill	
Gold Inlay Machine	45
Gustav Scharmann	5
Hall & Ruckel	0
Howard ('o	27
Hisey Alvatunder Indiana Dental College, Indianapolis, Ind Lambert Pharmacal Co., St. Louis F. F.	12
Indiana Dental College Indianapolis Ind	22
Humbert Dearmont Co. St. Louis	r. Ř.
Lauderdale Orown System	·
Lauderdaie Orown System	21
Lauderdale Gold Amealer	41
Lavoris Chemical Co	85
Lederle & Co., F. A.	16
Lea Smith & Son	2
Library of Universal History	52
Louisville Dental Laboratory	29
Methodo France	32
Matteson Furnace. Metaline Carving Compound	. 22
Metaline Carving Compound	8, 44
Mylocal	46
Nerve Qui-e-tus	33
Nerre Qui-e-tus Nolde Dental Mig. Co., John T., St. Louis North Western University Dental School	20
North Western University Dental School	19
O'Brien Worthen Co.	85
Office Coat Co.	47
Once to a Co.	19
Overdier Coar Co	-10
Peck's Inlay Compound	612
Overdier Coat Co. Peck's Inlay Compound. Pepairs	25
Permaneo	15
Ritter Dental Mfg. Co.	1
Roach's Suction Wax Carver Rodolf Casting Outfit Smith Premier Typewriter Co.	16
Radalf Casting Outfit	47
Smith Droming Outrospecial Co	82
Shima Tenner I province Co	47 82 82 26
Skinner, F. H., DDS. Spooner Dental Co.	90
Spooner Dental Co	ಪ್ರಾ
S. Eldred Gilbert	6
Taggart Cast Inlay Machine	48
Tooth Cleaning Mandrels	40
Tracy Casting Machine	49
Turner Alzahol Rlow Pine -	51
Tooth Cleaning Mandrels Tracy Casting Machine Turner Aleshol Blow Pipe. Wax and itvesting compound for Cast Gold Inlays.	Ã
Western New York Chem. Co	SWET
WESIGHT NOW LOIR CHEM. CO FIRST CO FIRST CO	1467



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